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THE ENCYCLOPEDIA OF FOOD

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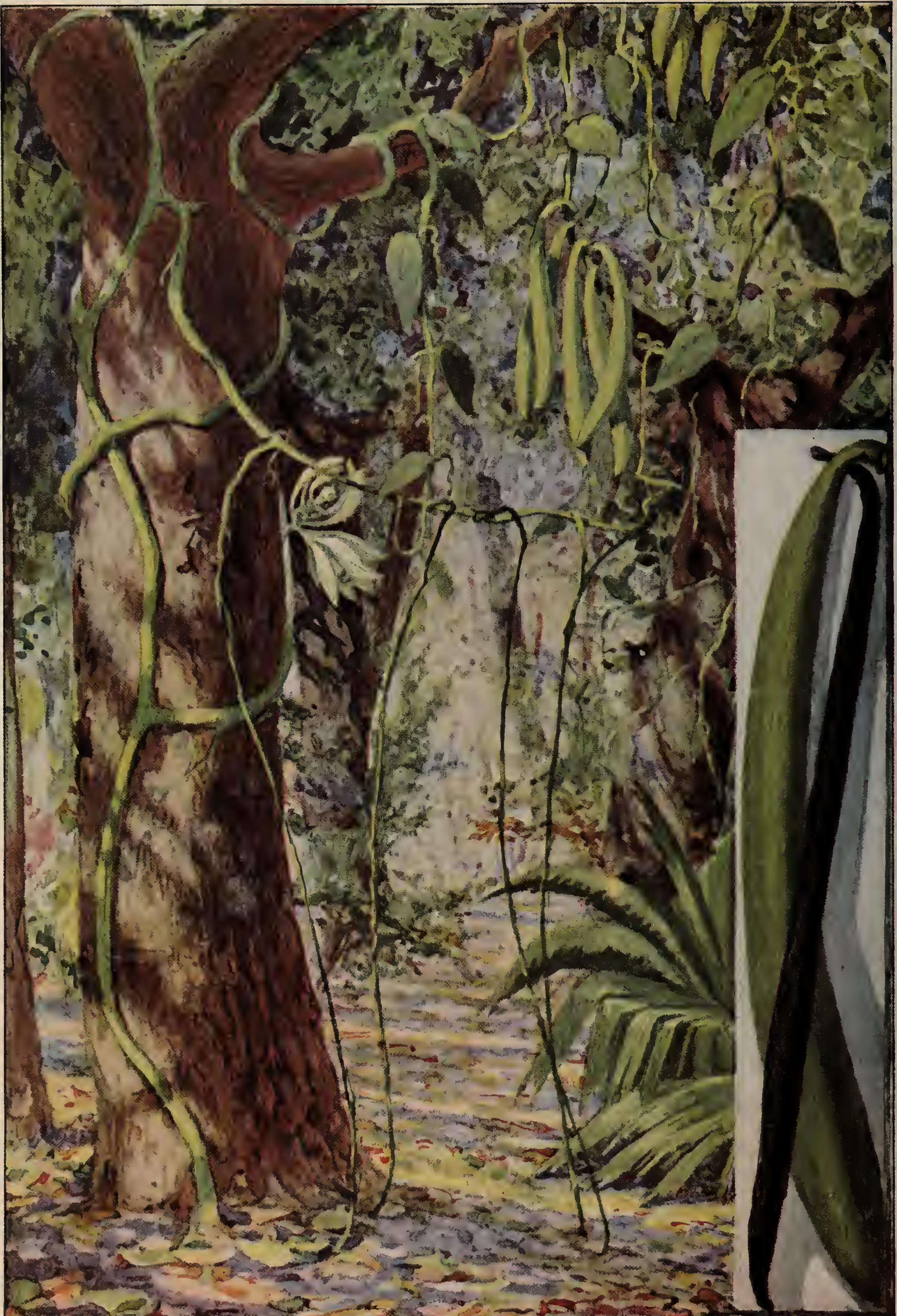

VANILLA (Orchid and Bean)

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THE ENCYCLOPEDIA OF FOOD

THE STORIES OF THE FOODS BY WHICH WE
LIVE · HOW AND WHERE THEY GROW AND ARE
MARKETED · THEIR COMPARATIVE VALUES
AND HOW BEST TO USE AND ENJOY THEM

PUBLISHED BY
ARTEMAS WARD

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PREFACE

THIS work, the Encyclopedia of Food, has been forty years on the road! In 1882 its first predecessor was issued—the date being all that I care to recall. In 1911 appeared a much larger and more important form which handled the subject of foods in creditable manner but which had been restricted by its dedication to the dealer in foods. Now in 1923, having dropped that limit, it is with a measure of pride that I offer a volume planned and published for the entire eating public—for the family and all its individual members. As an example of evolution it is a ''butterfly evolved from a grub.'' It very nearly fulfills the ambition that has stimulated me to repeated endeavor during half a lifetime.

It would be unfair of me to monopolize all of the pleasure growing out of its success. Credit must be given to Mr. Charles Martyn, whose industry and accuracy have rendered the text so reliable, and to Mr. Herman Eggeling, whose brush produced nearly three-fourths of the color-pages and whose artistic ability has made them such perfect copies of their subjects.

I confidently predict that the work will receive a welcome throughout the United States.

Artemas Ward

136891

INDEX TO COLOR-PAGES

Opposite Page

Apples 8
  1 Baldwin, Golden Russet, Greening, Green Sweet, Northern Spy, Spitzenburg, Swaar
  2 Early Harvest, Fall Pippin, Gravenstein, Lady Sweet, Maiden Blush, Newton Pippin, Red June, Streaked Pippin

Apricots 12

Asparagus 14

Avocados 16

Bamboo
  Digging the edible shoots 19

Banana-plant 20

Beef Cuts 36
  1 First Cut Ribs, Middle Cut Ribs, Third Cut Ribs, Fifth and Sixth Cut Ribs
  2 Porterhouse Cut, Porterhouse Steak, First Cut Chuck
  3 Extra Porterhouse Steak, Second Cut (or Chuck) Steak, Hip Sirloin, Top Round Steak
  4 Flat Bone Top Sirloin, Round Bone Top Sirloin

Berries
  Blackberries, Blueberries, Cranberries, Currants, Gooseberries, Loganberries, Raspberries, Strawberries 42

Bread
  French, Pumpernickel, Rye, Twist, Vienna 47

Brussels Sprouts 53

Carob-bean 73

Opposite Page

Cheese
  1 Camembert, Cheddar, Cream, Edam 88
  2 Emmenthaler ("Swiss"), Limburger, Neufchatel, Pineapple 92

Cherries 97

Cinnamon
  Cutting the sticks 110

Clams 113

Cacao-trees
  Harvesting the cocoa-pods 117

Coconuts 122
  1 Palms
  2 Section of a nut

Coffee
  1 Branch 130
  2 Beans 134

Corn 151

Cucumbers 166

Date-palms 171

Ducks
  Canvasback, Mallard 180

Eggplant 189

Fig-trees (the Smyrna fig) 192

Fishes
  1 Butterfish, Herring, Mackerel, Pompano, Smelt 294
  2 Cod, Halibut, Mullet, Salmon 332
  3 Blackfish, Black Sea-bass, Haddock, Shad 470
  4 Bluefish, Sheepshead, Spanish Mackerel, Weakfish 484
  5 Brook-trout, Small-mouthed Black Bass, Yellow Perch, Whitefish 534

Opposite Page

Grains
1 Barley, Buckwheat, Rice - - - - 434
2 Oats, Rye, Wheat - - - - - - 558

Grapes - - - - - - - - - - - 232
1 Concord, Catawba
2 Niagara, Delaware

Grapefruit - - - - - - - 236

Grouse and Woodcock
Ruffed Grouse, Prairie Chicken, Woodcock - - - - - - - - - - 242

Honey - - - - - - - - - - 254

Kumquats and Loquats - - - - 290

Lamb
Short Saddle, Loin Chop, Rib Chop, Forequarter - - - - - - - - 277

Lemons - - - - - - - - - - 279

Litchi - - - - - - - - - - 286

Macaroni and similar Pastes - - 292

Mangoes - - - - - - - - - - 298

Maple-sap Collection - - - - - 302

Mushrooms
Beefsteak, Boletus, Chanterelle, Common, Fairy Ring, Ink-cap, Masked Tricholoma, Morel, Oyster, Pale Yellow Clavaria, Parasol, Puffball, Shaggy Mane - - - between 334 and 335

Mutton
Shoulder, Hindquarter, Leg - - - - 341

Nuts - - - - - - - - - - - 346
1 Brazil-nuts, Butternuts, Walnuts
2 Almond, Chestnut, Filbert, Hickory-nut, Paradise-nut, Pecan, Pili-nut, Pine-nuts, Pistachio-nut

Nutmegs and Cloves - - - - - - 348

Olives - - - - - - - - - - - 354

Opposite Page

Oranges - - - - - - - - - - 360
1 Branch with fruits and blossoms
2 Florida, King, Navel, Tangerine

Oysters - - - - - - - - - - 366

Oyster-plants
Salsify, Scorzonera - - - - - - 372

Peaches - - - - - - - - - - 380

Peanuts - - - - - - - - - - 382

Pears - - - - - - - - - - 384

Pepper and Capsicums - - - - - 387

Persimmons - - - - - - - - 392

Pineapple-plant - - - - - - - 396

Pomegranates - - - - - - - - 404

Quinces - - - - - - - - - - 422

Sapodilla-tree
Cutting the bark to obtain chicle - - 99

Sausages
Blood, Bologna, Cervelat, Frankfurter, Mortadella, Salami - - - - - - 462

Shellfish
Crab, Crayfish, Lobster, Prawn, Shrimp 288

Sugar-cane - - - - - - - 494

Tea
Shoots ready for plucking - - - - 514

Tomatoes - - - - - - - - - 530

Tropical Fruits
Cashew nut and apple, Guavas, Mangosteen, Star-apple, Sweet-sop - - 244

Turtle - - - - - - - - - - 540

Vanilla Orchid - - Frontispiece

Veal
Rack, Leg, Loin, Shoulder - - - - 544

Watermelon - - - - - - - - - 556

INTRODUCTION

THE days of food ignorance are passing. Men have too long blamed Providence for a vast deal of ill-health and retarded development due entirely to faulty diet. Through the earnest labors of scientific men they now begin to realize that health and development depend on proper food; that if the child does not receive enough calcium in its food, it cannot grow strong bones or good teeth; if it does not get enough protein, it cannot achieve normal growth.

Errors of diet have affected all classes—for ignorance of food values has not been confined to the poor—and have seriously impeded our social progress by the numbers which fall short of the physical health and mental vigor that should have been theirs. When made familiar with the true relations of proper food to each and every life, no one can feel content with the haphazard, untrained, uncalculated dietaries of the past. We must *know* the foods that we eat for what they are and for what they can do for us.

To this aroused consciousness I offer this new Encyclopedia. It treats alike on common and well tried foods and on others new to American tables. Its illustrated stories and descriptions will add to the pleasure of living and will convert a reader ignorant of foods into one well informed. Those are its main aims and objects. Further, it will aid in the selection of foods, and their care, and will thus help to translate our new knowledge into actual working practise.

The text of the stories and descriptions—arranged alphabetically under a thousand headings—is the result of a careful consideration of what to print—and what not to! No attempt has been made to give even approximately all the available information concerning foods. That would have extended the work through many dry-as-dust volumes which few would have consulted instead of one which I hope will be worn out by usage! Nor did any arbitrary set of rules dictate the material to be included. Each article was considered separately, and constituted a law unto itself. Under its heading was grouped whatever seemed of essential interest, and truly informative, and most likely to be of practical use. All matter which fell below those requirements was ruthlessly discarded. The result is that some titles carry fewer lines than in a dictionary; others approach the completeness of a monograph. Great pains have been exercised to ensure accuracy. Many an apparently simple paragraph owes its merit to intensive research, and many a short article contains information otherwise obtainable only by hunting through dozens of books. Some of it—the result of personal investigation and experiment—could be found nowhere else.

Technical terms unfamiliar to an ordinarily well-informed layman have been used only when their employment was required for concise description, and in such cases the text interprets them whenever feasible so that the reader need not be continually traveling to and from the dictionary in order to obtain a full understanding of the article he is perusing. Latin names—of plants, fishes, etc.—are given only when they are necessary to avoid the confusion from contradictory popular titles.

The eighty color-pages (showing two hundred subjects) are, for the most part, direct studies from life. The half-tone illustrations so freely supplementing them represent a selection from many thousands of photographs, and the special taking of a considerable number. No other work on foods even approaches this Encyclopedia in the matter of illustrations. Librarians and teachers particularly will rejoice in the riches spread for their use.

The book should hold fascinating interest for thousands of readers. There is hardly a morsel of food but has the breath of romance in it. Farms and plantations and forests in all countries and climes—and the various waters of the deep—all contribute their quotas of the things we eat. Ships steam over the ocean to transport them here; huge factories work with all the force of steam, electricity, and human labor to prepare them and put them up in pleasing form; and heavy, loaded trains and trucks rush across and up and down the continent to distribute them to every city, town, and hamlet. Open a can of salmon—imagination conjures up the magnificent fish that swam and fought in the salt waters of the Pacific, delivered fresh and delicious in a little country town, perhaps a thousand miles inland. Eat a dried fig—and (if it be a good one) enjoy a fruit dependent upon the life of a tiny wasp—no matter whether the fig came from California or the ancient country of Asia Minor. The sugar on the table and in the pudding was perhaps from sugar-cane grown in the West Indies—or maybe in the Philippines. If it happened to be beet-sugar (one cannot tell the difference) it is owed to Napoleon Bonaparte, for it was the prize he offered which laid the first strong foundation for the beet-sugar industry. The pepper was brought from the East Indies, and the salt was carried up from the bowels of the earth.

The book is addressed primarily to the individual consumer—to the family and its members—whether it be consulted in the home or library or school—but interspersed here and there is helpful information for the retailer—for the man whose calling it is to dispense foods to a majority of the population—and whose knowledge and care of foods thus becomes a vital factor of national economy.

The main text is supplemented by an Appendix of forty pages. Its first section is devoted to a list of food titles with their equivalents in French, German, Italian, Spanish, and Swedish; the dictionary being repeated in each language, as French-English, German-English, Italian-English, Spanish-English, and Swedish-English. Next come several pages of the most common culinary and bill of fare terms with brief descriptions.

Finally, it has been my aim to give readers the very latest word on every subject—corrections and additions have been made right up to the moment of going to press. The volume as now delivered is, consequently, modern from cover to cover.

ARTEMAS WARD.

THE
ENCYCLOPEDIA
OF FOOD

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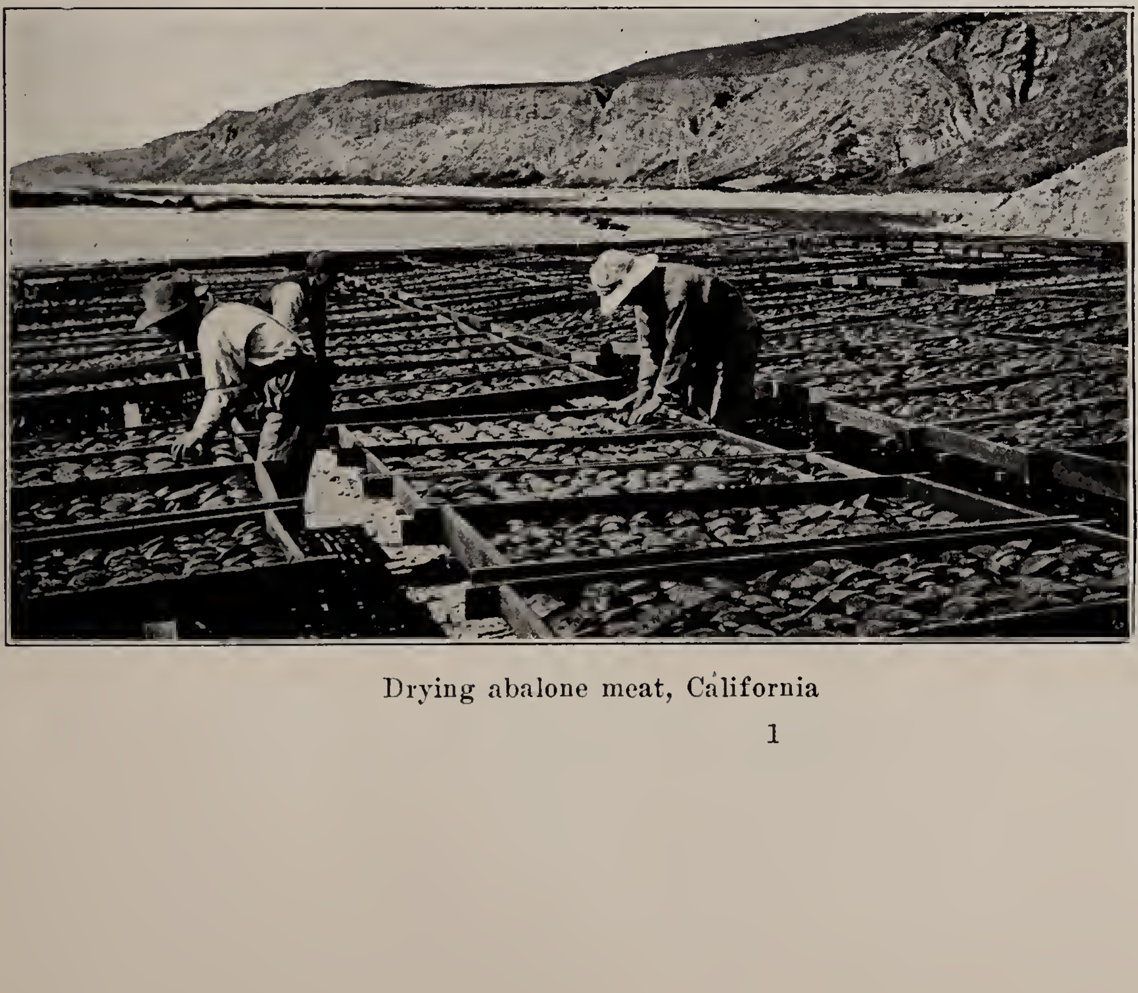
ABALONE, a large sea-snail with flattened shell, common along both Pacific coasts—especially, on this side of the Pacific, off southern California. If undisturbed it attains a shell circumference of thirty or more inches, but the fishery is too intensive to permit such growth except in rare cases, or in localities of difficult or unusual access, and the maximum seldom exceeds twenty inches, with the average a great deal less.

The chief commercial value of the abalone lies in its beautiful inner-shell—its "pearls" and "mother-of-pearl"—much used in the manufacture of souvenirs, ornaments, and buttons, but its flesh is also of economic importance and is increasing in favor among white residents of the Pacific coast states, instead of being, as in former years, a food almost entirely neglected save by Chinese and Japanese.

For eating fresh and for canning, only the central muscle system is used—as with the scallop—but this in good specimens measures two to four inches in width and length, and three to four inches in thickness—white in color and solid of texture. It is best minced and served in chowder, to which it gives a pleasantly strong clam flavor.



Drying abalone meat, California

In drying—the general Oriental method—almost the entire snail is preserved (the shell alone excepted). The process includes several operations—brining, trimming, washing, boiling, sun-drying, smoking, etc. There is a considerable export of the dried meats to China to supplement the Oriental supply.

ACORN, the fruit of the oak. Acorns are important now only as local fodder for swine (they are credited with much of the fame of the Westphalia ham and the original Bologna sausage) but in earlier days several varieties served during the autumn months of temperate zones as one of the principal articles of human diet. The "sweet acorns" of *Q. esculus* are still widely eaten in southern Europe, prepared in the same ways as their cousins, the sweet chestnuts.

AERATED WATER, distilled water to which purified filtered air has been added to improve its flavor. The term is often applied to Carbonated Waters (which see).

AGAR-AGAR, or Kanten, or Japanese Gelatin, a "vegetable-isinglass," or "vegetable-gelatin," prepared in great quantities in Japan from the *Gelidium* genus of red seaweed, for use in the preparation of jellies, soups, etc., and for clarifying saki, or rice spirit. It is pearly white, semi-transparent, tasteless, and odorless, and is marketed in stick and block form—"slender kanten" and "square kanten"—and also cut small.

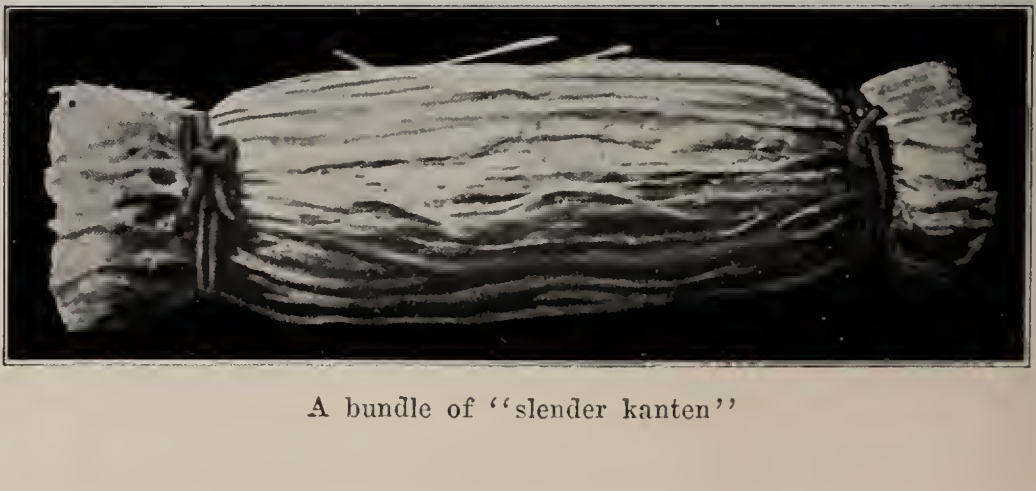
Part of the two to three million pounds annually exported to this country and Europe is at times employed in the manufacture of food products—to thicken jams, jellies, and ice cream—but the great bulk is used in the textile, silk, and other industries, and medicinally. It is valued by bacteriologists for making culture media.

Bar, or "square," kanten

Bengal isinglass, "Ceylon moss," and "Chinese moss" are related products.

Gelidium seaweed grows abundantly on the Pacific Coast of the United States and at some points along the Atlantic, and apparently offers a good opportunity for the manufacture of domestic vegetable-isinglass.

For its food value, see the article on Seaweed.


A bundle of "slender kanten"

AGAVE. See MAGUEY.

AKALA, or Akala Berry, a general title for a group of exceedingly large, juicy, small-seeded, roundish (usually somewhat flattened) raspberry-style berries native to the Hawaiian Islands. Big specimens have a diameter of two inches. Some of the plants are upright shrubs and some are climbing creepers; some are spiny, others smooth. The fruits are variously dark purplish and orange; some with a suggestion of bitterness, others very delicately flavored.

AKEBIA QUINATA, a graceful, fragrant-flowered, climbing shrub with a dark purple, black-seeded, edible fruit about the size and shape of a small banana, popular and widely consumed in Japan and China. The shrub is grown here but almost exclusively for ornament.

ALBACORE. See TUNA.

ALBUMIN, a simple protein (see FOOD VALUES) widely distributed in both animal and vegetable matter. The best natural example is the white of an egg ("albumen") which is nearly pure albumin and water. In the vegetable kingdom it is found chiefly in seeds. In addition to its nutritive uses, it has a long list of industrial. In France, large quantities are prepared at the abattoirs by drying the blood of the cattle killed. When chemically pure it is almost colorless, odorless, and tasteless.

ALCOHOL, Ethyl Alcohol (also called *Grain Alcohol, Root Alcohol, Spirits of Wine,* etc., according to the source), a product of the fermentation—i.e., the effect of the growth of yeast-cells, either wild or cultivated (see YEAST)—of liquid containing a moderate amount of any one of several forms of sugar. The sugary element is the result of the conversion of starch, either by natural growth as in grapes, sugar-beets, and sugar-cane, or by the action of malt diastase on the starch of grains, potatoes, etc. The alcohol is extracted from the fermented liquid by the process of DISTILLATION (which see). It is present in large percentage in distilled spirituous liquors (as brandy, whisky, and rum), and in smaller percentage in fermented products (as wine, cider, and beer).

Pure alcohol is transparent and colorless, agreeable in odor, of strong and pungent flavor, and highly volatile and inflammable, burning with a pale blue, smokeless flame. If thoroughly refined, the product is identical—both by chemical analysis and in appearance and flavor—no matter what the source of the original starch or sugar.

Wood Alcohol. Similar to ethyl, or ordinary, alcohol in appearance, odor, and flavor—and closely allied chemically—but nevertheless vastly different in its effect on the human system is *Methyl Alcohol,* or "wood alcohol"—a product valuable in varnish manufacture and other industries, but a *poison of deadly virulence.* It is obtained chiefly by refining the crude "wood spirit" secured as one of the products of the destructive distillation of wood—i.e., the baking of wood within metal tanks. The drinking of even a small quantity of wood alcohol may result in either blindness or death—or the two in succession. To inhale its fumes may have the same effect. It is dangerous even as an external application. And the peril extends to all products in which it is included—ordinary alcohol may be denatured by the addition of only a small percentage of wood alcohol but the liquid is thus made dangerous to life—the ordinary alcohol will quickly pass out of the system unless taken in great excess, but the wood alcohol lingers in it and generates poisons in it. It was formerly thought that the evil of wood alcohol was due to the numerous impurities of the earlier products, but modern highly refined methyl alcohol remains deadly.

Authorities are justified in the most drastic measures to prevent the use of wood alcohol in any food or toilet preparation, for prevention at the source is the only efficacious method. Refined wood alcohol may so closely resemble ordinary alcohol that an unwarned layman may unwittingly use it as such, especially if diluted, and even the experienced chemist must test most carefully to distinguish them after they have been flavored or blended.

Denatured alcohol, intended for industrial and commercial uses, is ethyl, or ordinary, alcohol rendered theoretically undrinkable by various formulas—especially by the addition of ten gallons of methyl (wood) alcohol and one-half gallon of petroleum benzin to each hundred gallons. See the reference to it in the second paragraph preceding.

ALEWIFE, a shad-like fish taken along the coast from the Gulf of St. Lawrence to Chesapeake Bay. It is largely exported after salting to the West Indies. Its chief use in this country is as fertilizer.

ALFALFA, a perennial, clover-like plant widely grown for forage. Its roots make an agreeable vegetable, and flour has been milled from its dried leaves for blending with wheat-flour. It shows a good content of protein, carbohydrates, and fat, but an excessive proportion of crude fiber. The blossoms of the great alfalfa fields supply apiarists with hundreds of tons of honey.

ALLIGATOR PEAR. See AVOCADO.

ALLSPICE, the fruit of a West-Indian tree. It is about the size of a small pea, and is gathered when fully grown, but not ripened, and dried in the sun. It is called ''allspice'' from its supposed resemblance in flavor to a mixture of ''all spices'' —particularly cinnamon, nutmeg, and cloves. It is also known as ''pimento'' because of its resemblance to a pepper-corn (the name officially adhering as the title of its tree), and ''Jamaica pepper,'' because it is largely grown in Jamaica.

For the domestic ''wild allspice'' see SPICE-BUSH.

ALMOND (see the second color-page of NUTS, facing 346), the kernel of the leathery fruit of a tree, native to the territory east of the Mediterranean, which long ago became fully naturalized throughout southern Europe and Asia, and is now extensively grown also in California, Australia, and South Africa. Its appearance suggests the peach-tree but it reaches a greater size and lives longer. In California the fruit ripens generally in August and September—splitting at maturity and exposing the nut inside—and the new crop is ready for shipment during October and November.

There are two chief types—the Sweet and the Bitter. It is the sweet almond which is always understood when the unqualified title ''almond'' is employed. Their trees are indistinguishable. It is frequently said that you may know them apart by the color of their flowers, but such statements are inaccurate.

Sweet almonds are both palate-pleasing and nutritious—and easily digested if well chewed. They are rich in phosphorus, calcium, and iron. The Bitter are unde-

Logan Studio

Gathering almonds, California

sirable as food (except in small quantities for blending with sweet almonds) because of their hydrocyanic, or prussic, acid content, being instead grown mainly for their oils (see ALMOND OIL).

California almonds are chiefly from strains of domestic development. The most highly considered are those with large, smooth, plump, symmetrical kernels enclosed in thin, light-colored shells (''paper-shells''). The shells should not be so excessively thin as to endanger the kernels in shipment and handling. ''Soft-shells'' are those of medium hardness. ''Hard-shells'' require a hammer to break them.

Of imported almonds, the best known are the Jordan and Valencia, grown along the southern coast of Spain and marketed principally from Malaga. There is also a considerable, but lesser, importation from Italy (including Sicily) and France—the greater part of the almonds from French ports having, however, been grown in Spain or Italy.

Green almonds are young sweet almonds, marketed while their shells are soft and their outer coverings are green and tender. The white, creamy kernels served fresh, with skins removed, constitute a delicate dessert offering. They also make an excellent confection, simply sugar-preserved.

Blanched almonds are ripe sweet almonds with the outer brown skins removed.

Burnt almonds are roasted sweet almonds. They are done up in sugar when destined for consumption as confectionery, being then known also as ''pralines'' and ''sugar almonds.''

ALMOND CAKE, ALMOND MEAL, SWEET ALMOND PASTE, products of ground, blanched sweet almonds after the extraction of their oil. They are much used in pastry and confectionery—in the manufacture of macaroons and other sweet articles, and in fancy cake and pie filling.

ALMOND EXTRACT, a solution of oil of bitter almonds, about 1%, in alcohol of fair strength.

ALMOND OIL, if for edible purposes, should be prepared from sweet almonds only. The best quality (commonly obtained by simple expression) is light yellow or white, nearly free from odor, and with a mild, nutty flavor. It is a pleasing substitute for olive oil. For other uses (as perfumery and soap-making) it is derived also, and with equal success, from the kernels of bitter almonds, apricots, peaches, and prunes. In general commercial manufacture here, apricot and peach kernels (particularly the former) have, indeed, almost entirely displaced both types of almonds. The apricot pit is preferred to that of the peach as the shells are thinner and the kernels generally larger and plumper.

Oil of Bitter Almonds is an entirely different product—a volatile oil extracted by maceration and distillation from the crushed kernels of bitter almonds, apricots, peaches, or prunes, after the expression of (sweet) almond oil. In concentrated form it is poisonous because of the considerable percentage of hydrocyanic, or prussic, acid developed, but diluted, as in almond extract, it is a popular flavoring in confectionery and cooking.

ALMOND SIRUP, if of high quality, is an emulsion of the mixed ground kernels of sweet almonds and bitter almonds (or apricot or peach kernels instead of bitter almonds) in barley sirup (then generally known as orgeat sirup) or in a sirup of orange-flower water and sugar. Ten parts of sweet almonds are generally employed to three parts of bitter almonds (or apricot or peach kernels).

AMBER-FISH, or Lemon-Fish, or Coronado. The Common amber, valued along the Gulf Coast and southward, is a big, handsomely colored creature which sometimes exceeds a weight of 100 pounds. Among others of the genus (*Seriola*) are the smaller Amber-jack (also known by the same titles as the Common amber) of Florida, the West Indies, and elsewhere; and the California Yellowtail (see YELLOWTAIL).

ANCHOVY, a small fish of fine and peculiar flavor, a member of the herring tribe and resembling the English sprat. It may be recognized by the deep cleft of its mouth, its angle behind the eyes. It is found in several parts of Europe, being most abundant in the Mediterranean, especially in the vicinity of the island of Gorgona, near Leghorn, where also the catch is of the best quality.

Anchovies are prepared for exportation by removing the heads, intestines, and pectoral fins, and packing in rock salt in small kegs, to be later bottled, whole or filleted, in oil or salt, or otherwise repacked for retailing. Dutch anchovies are cleaned of their scales, the French and Italian are not. The small fish are valued more highly than the larger.

Anchovies are also extensively potted and made into a butter or paste and a sauce or essence—the latter (pink, thick, and oily) consisting of the pounded fish, together with spices, and used as a flavoring for soups and sauces. The ancient Greeks and Romans prepared the sauce or relish known as "garum" from them.

Norwegian anchovies are young sprats.

Domestic anchovies—small fish of allied genera—frequent our entire coast line, being most plentiful off the shores of the southern states and southern California. The choicest is the comparatively large "California anchovy" (*Engraulis mordax*).

ANCHOVY-PEAR, a russet-colored fruit borne by a very ornamental West-Indian tree, thirty to fifty feet in height, with large flowers and leaves averaging three feet in length. It tastes somewhat like a mango and is used in the same way.

ANGEL-FISH, a title applied to many fishes, especially the SPADE-FISH (which see).

ANGELICA, an aromatic plant, native to the Alps, growing freely in many parts of Europe, as far north as Iceland and Lapland. The natives of the latter country use the fleshy roots as food and the stalks as medicine. Commercially, the young and tender leaf-stalks and midribs are candied for sale as confectionery.

ANISEED, the minute seed of an annual plant cultivated chiefly in Spain, Egypt, Syria, and other Mediterranean countries, but also to a large extent in Germany, principally in the vicinity of Erfurt. It is used as a condiment, in candy-making, etc.

Star, or *Chinese, Anise,* or *Badian,* the fruit of the Chinese anise-tree, is in flavor and properties similar to common anise, but is very different in appearance, being star-shaped and frequently of a total diameter of about an inch. In China it is often added to tea.

ANNATTO, a yellowish-red dye used in coloring butter and cheese. It is extracted from the reddish pulp which surrounds the seeds of the arnatto-tree, found principally in South America and the West Indies, and is generally exported in cakes of two or more pounds weight, wrapped in leaves.

ANSERINE. See reference under the head of Goosefoot.

APPLE. The cultivation of the apple antedates history—remains of the fruit have been found in Switzerland's prehistoric lake dwellings. Its early form was probably that of the common crab-apple of Europe and western Asia (see Crab-apple). Of its present varieties there are several thousand. The cultivated tree is at its prime when about fifty years old and will bear fruit for considerably more than a hundred years.

North America is the greatest apple country in the world, its annual crop exceeding 100,000,000 barrels—Washington, New York, Virginia, and Arkansas leading in the order named. In early New England days the fruit was chiefly valued for its cider product, but its uses are now widely diversified—for eating raw, cooked, and preserved, and in the making of jams, jellies, and vinegar—as well as, still, for cider. Because of its pectin content, vast quantities are employed in jam and jelly making—the latter consuming all available canning and cider-mill by-products—cores, skins, and pomace. The pomace is also a good stock-food.

There are many uses which could profitably be extended. Apple juice is, when well made, a beverage which appeals to many palates, and on evaporation it yields an excellent sirup both for the table and for cooking.

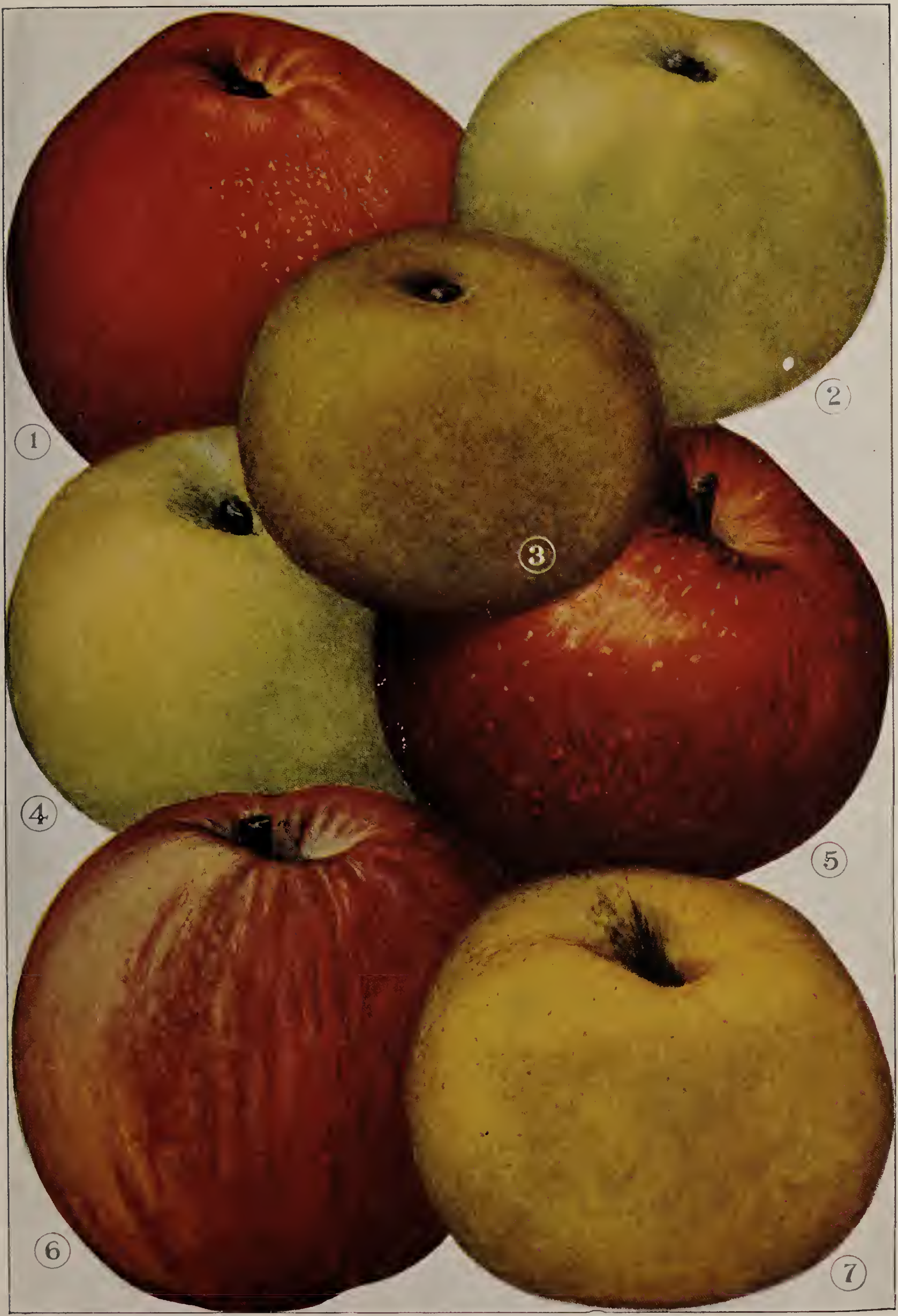
A ripe, raw, good-quality fruit, if well masticated, digests in about ninety minutes. Unless well masticated it is liable to undergo fermentation. "An apple a day keeps the doctor away" is an old saying—but, as often, hastily consumed by children, gulping down pieces of considerable size without chewing them, the "apple a day" frequently results in increasing the doctor's practise! Lightly cooked as apple-sauce (a finely divided form) and consumed in moderate quantities, it is an exceptionally safe and wholesome fruit. The custom of serving apple-sauce with roast pork, rich goose, and similar dishes is based on sound reasons.

The many varieties differ widely in appearance, flavor, time of ripening, and popularity. Fifteen kinds are shown on the color-pages opposite. Of these, Early Harvest and Red June are early, or "summer," apples, and the Fall Pippin, Gravenstein, and Maiden Blush are chiefly of the autumn crop. The remaining ten are "winter" apples, i.e. late apples of the right quality for keeping over the winter.

Other popular kinds are: *Summer*—Horse, Oldenburg, Red Astrakhan; *Autumn*—Wealthy, Yellow Transparent; and *Winter*—Arkansas, Ben Davis, Fameuse, Gano, Grimes, Jonathan, Limbertwig, McIntosh, Missouri, Northwestern, Rome Beauty, Stayman Winesap, Tolman, Tompkins King, White Pearmain, Winesap, Wolf River, Yellow Bellflower, and York Imperial.

The Baldwin and the Ben Davis lead all other apples in total crop. Next come the Northern Spy, Winesap, Rhode Island Greening, Rome Beauty, and Early Harvest. It will be noted that, with the one exception of the Early Harvest, they are all winter apples.

The Ben Davis, though so near the head of the list, is thick-skinned and coarse-fleshed, and generally poor in flavor. It is of good size and an attractive bright red, a first-class shipper and keeper, but because of its quality defects it is less planted than formerly. It is best employed as a cooking apple.

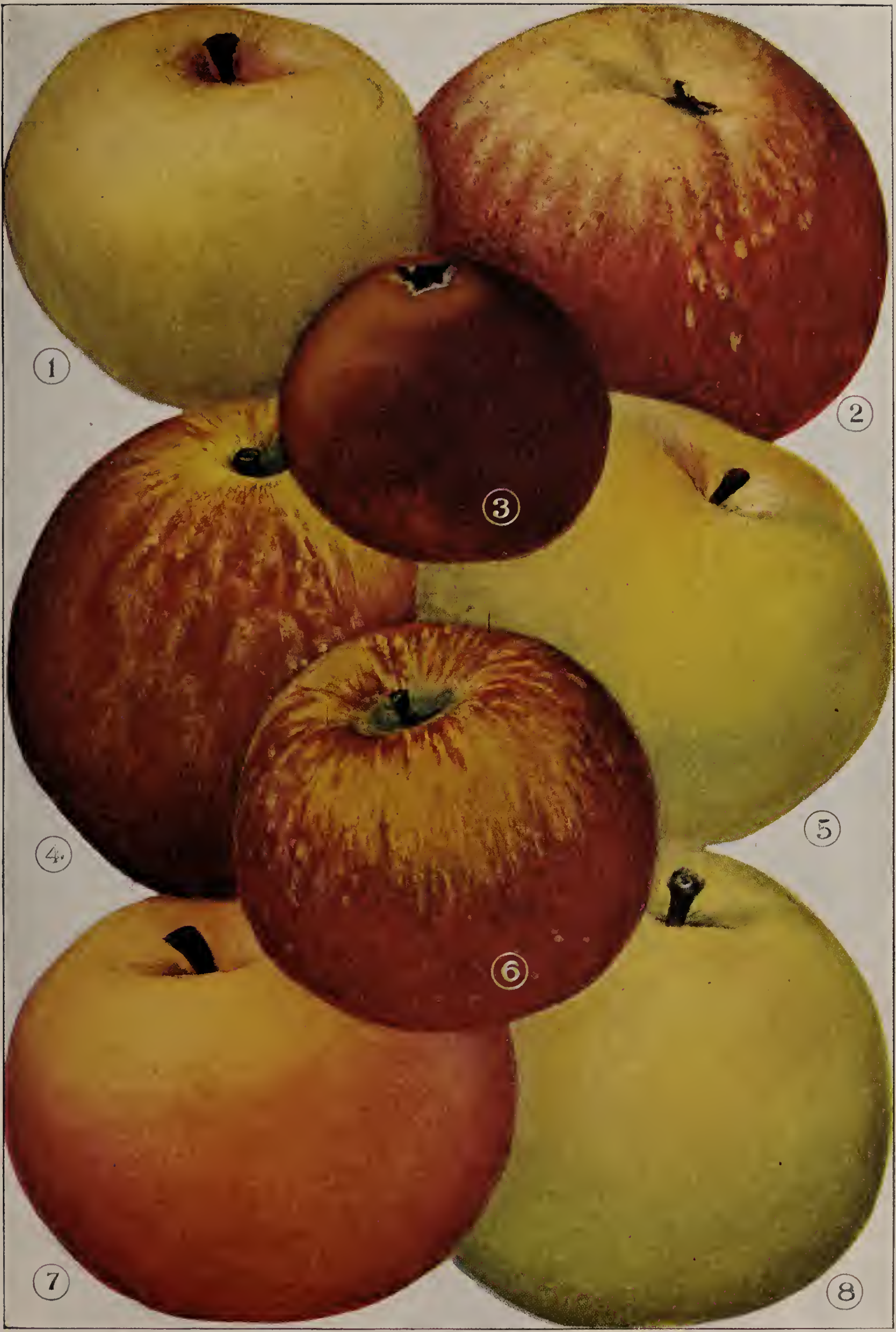


(1) Spitzenburg
(4) Greening
(6) Northern Spy

(3) Golden Russet

(2) Green Sweet
(5) Baldwin
(7) Swaar

APPLES



(1) Early Harvest (3) Red June (2) Gravenstein
(4) Streaked Pippin (6) Lady Sweet (5) Newtown Pippin
(7) Maiden Blush (8) Fall Pippin

APPLES

The Baldwin also is inferior to many other offerings of the orchardist, but it retains a strong popular hold because of its combination of passably well-flavored flesh with highly colored skin and good keeping and shipping merits. It is a general purpose apple—for both table and cooking. Its chief defect is a tendency to over-dryness.

The third name on the list—the Northern Spy—is usually considered the highest type of the Baldwin class. It is large, handsomely colored, excellent both in flavor and flesh quality, and suitable alike for table and cooking. The Spitzenburg (Esopus) is a similar fruit.

Winesaps (for both table and cooking) are dark red, medium to large, and good keepers. Rhode Island Greenings (for both table and cooking) are large and generally green when gathered, but gradually change to a rich yellow. Rome Beauties (chiefly for cooking) are large and yellowish striped with red. Early Harvests (preferably for the table) are small or medium and pale yellow or greenish.

The care of apples is simple but exact. They should be kept dry and cool—the colder the better, short of freezing—and all bruised or decaying fruits must be promptly removed. Otherwise the trouble will quickly spread to an alarming extent.

The packing of apples is changing. The barrel is being superseded by the box—which is a great deal better suited to the retail trade. In the northwestern and

Barreling apples

Pacific states it is employed exclusively. The box most commonly used measures inside 9¾ inches high, by 10¾ inches wide and about 20¾ inches long, and holds about one bushel, or nearly fifty pounds of fruit, varying slightly according to the variety.

When the box package is used, the fruits should be carefully graded to uniform size and packed in layers.

Apple Storage. The bulk of the apples placed in cold-storage warehouses begin to come into the market after the Christmas holidays, those first sent out being the less hardy varieties which will not keep for any great length of time. Some very choice kinds can be carried over until July, just reaching the season when early varieties of the new crop are ready.

Apples are placed in the cold-storage rooms in the same barrels and boxes in which they are shipped from the grower, not even a barrel-head or box-lid being removed. The temperature is kept constantly at about 32° Fahr., and it is a pretty safe assertion that any apples going into the warehouse in perfect condition will still be found so when displayed for sale on their re-appearance in the markets. Some varieties improve—become sweeter—with storage.

The New England system of packing apples in sand is a fair substitute where cold storage is not available. A layer of dry sand is placed in the bottom of the barrel and on this a layer of apples—none of the apples, though, touching each other. Dry sand is then placed both between and over the fruit, the process being continued until the barrel is full. Apples packed in this manner keep well, and if one or two in a layer happen to be affected the sand usually prevents the trouble from being communicated to the others.

APPLE BUTTER, apple flesh boiled, or otherwise evaporated, with cider or vinegar to a semi-solid consistence together with (generally) sugar and spices. If (as it should be) made exclusively from sound, ripe fruit, it is equally nutritive and enjoyable. Its harmonious acceptability by the stomach varies with the quantity eaten, the idiosyncrasies of the consumer, and (perhaps chiefly) with the proportion of spices used.

Apple butter substitutes generally use cornstarch or cornmeal in place of apple flesh, imitate the apple flavor with citric acid and apple oil, and counterfeit fruit consistence by the aid of vegetable gums and waxes.

APPLE JUICE. See CIDER.

APRICOT (see the color-page facing 12), a fruit which in appearance suggests a small peach. Its three species are, it is believed, all native to Asia. It was introduced into Europe during the time of Alexander the Great, and was first cultivated in England during the sixteenth century. It is to-day one of the most important of California's fruit crops. It is eaten in every imaginable way—fresh, the fine varieties being especially valued for desserts; canned, dried, candied, and made into jam. It may be prepared in any way that peaches are.

The fresh apricot season commences about the middle of June and lasts about eight weeks, but only a comparatively small part of the big California crop is marketed fresh, as the fruit is of such delicate texture that it does not stand shipment well. For drying and canning it is graded by size—from "extra," not less than

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Drying apricots, California

2½ inches in diameter (a fruit truly peach-like!) to "number 3," not less than one inch.

See also reference to the uses of apricot kernels in the article on ALMOND OIL.

ARROWROOT. The true arrowroot is a starch obtained from the rootstock, or rhizome, of a West-Indian plant, *Maranta arundinacea,* "Bermuda arrowroot," and two or three related species, largely cultivated in tropical countries, and naturalized and thriving freely in our Gulf states. Its name has been attributed to the Indian practice of using the fresh roots to cure the wounds made by poisoned arrows.

The rootstocks are dug when they are about a year old. When good, they contain approximately 23% of starch. In Bermuda and Jamaica they are first washed, then cleaned of the paper-like scale, washed again, drained, and finally reduced to a pulp by beating them in mortars or subjecting them to the action of the wheel-rasp. The milky liquid thus obtained is passed through a coarse cloth or hair sieve and the starch allowed to settle at the bottom as an insoluble powder. This powder, dried in the sun or in drying houses, is the "arrowroot" of commerce and it is at once packed for market in air-tight cans, packages, or cases.

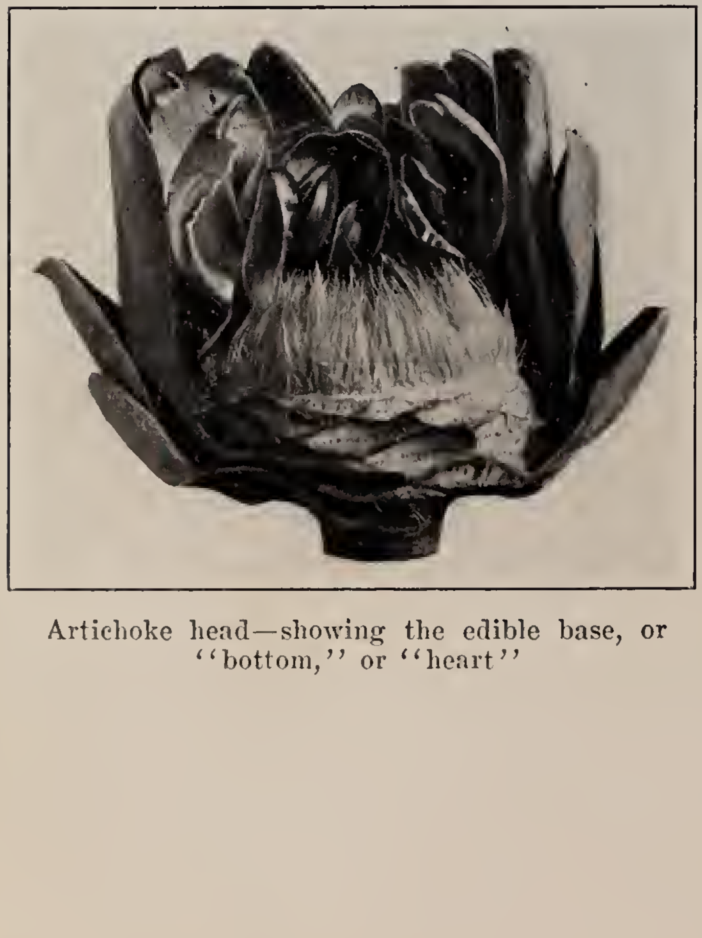
Arrowroot of high quality is a light, white powder, odorless when dry, but emitting a faint, peculiar odor when mixed with boiling water, and swelling on cooking into perfect jelly, very smooth in consistence.

It is used in the form of biscuits, puddings, jellies, and cakes, and also with beef tea, milk, and veal broth, or plain boiled with a little flavoring added, as an easily digestible food for invalids and children.

It is, however, classifiable as a luxury, for dietetically it is slightly inferior to the much cheaper cornstarch.

The title "arrowroot," with or without qualification, is also applied to edible starches obtained from the root systems of various other plants, as "Brazilian arrowroot" and "Florida arrowroot" (see respectively MANIOC and COONTIE).

ARTICHOKE, a plant resembling a large thistle, cultivated for its flowering head, gathered before the flower expands. It grows readily in California and the South. In special varieties the head attains an enormous size—up to a circumference of three to four feet. In color the bud-scales are variously greenish, bluish, violet, brownish, red, etc. The chief edible portions are the fleshy part of the calyx—the "bottom," or basin, of the blossom—and the bases of the leaves of the flower. The flesh corresponds to what children call the "cheese" of the ordinary thistle. As eaten here, it is generally steamed or boiled before serving, but in Europe it is also popular raw, seasoned only with salt and pepper.



Artichoke head—showing the edible base, or "bottom," or "heart"

In Italy, dried artichokes are consumed in large quantities in soups, and in France the

APRICOTS

$\frac{3}{4}$ Diameter

bottoms are a popular ingredient of ragouts. The blanched leaves and the central stalk, the latter cut into strips, are also eaten in soups and otherwise.

If cut so as to leave an inch or two of stem, artichokes possess good keeping qualities, frequently remaining fresh for two weeks or longer under average conditions.

The small buds are used chiefly for garnishing.

Canned artichokes, principally the bottoms, or ''fonds'', only, are imported in large quantities from Italy and France.

The novice is sometimes in doubt as to the proper method of eating a whole artichoke. First, steadying it lightly with the fingers of the left hand, pull the leaves off one at a time with a finger and the thumb of the right; then, retaining the leaf by its point, dip the thick white end in the butter or other sauce and gently pull it between the teeth, thus removing its delicate ''meat'' and leaving it where it belongs—in the mouth. Taking the leaves exposes the bottom, or ''heart,'' the choicest part of the artichoke, which is cut and carried to the mouth with a fork—after removing the ''choke'' (the hairy growth upon it) if perchance in home preparation it has not been scooped or cut off before cooking (or after a preliminary parboiling), or before serving.

The JAPANESE (or *Chinese*) ARTICHOKE and the JERUSALEM ARTICHOKE have no relation to the true artichoke. They are treated in their alphabetical positions.

Artichoke heads

ASH, a word frequently employed in food analysis to designate the mineral components, as they form the residue, or "ash," left after the application of heat sufficient to destroy all combustible components. See Food Values.

ASPARAGUS, a native of Europe which was a favorite vegetable of the ancient Romans. In this country only the "spears" are eaten but in other parts of the world the seeds have been largely used for coffee—they are still recommended for that purpose in some parts of Europe—and a fermented spirit is made from the berries.

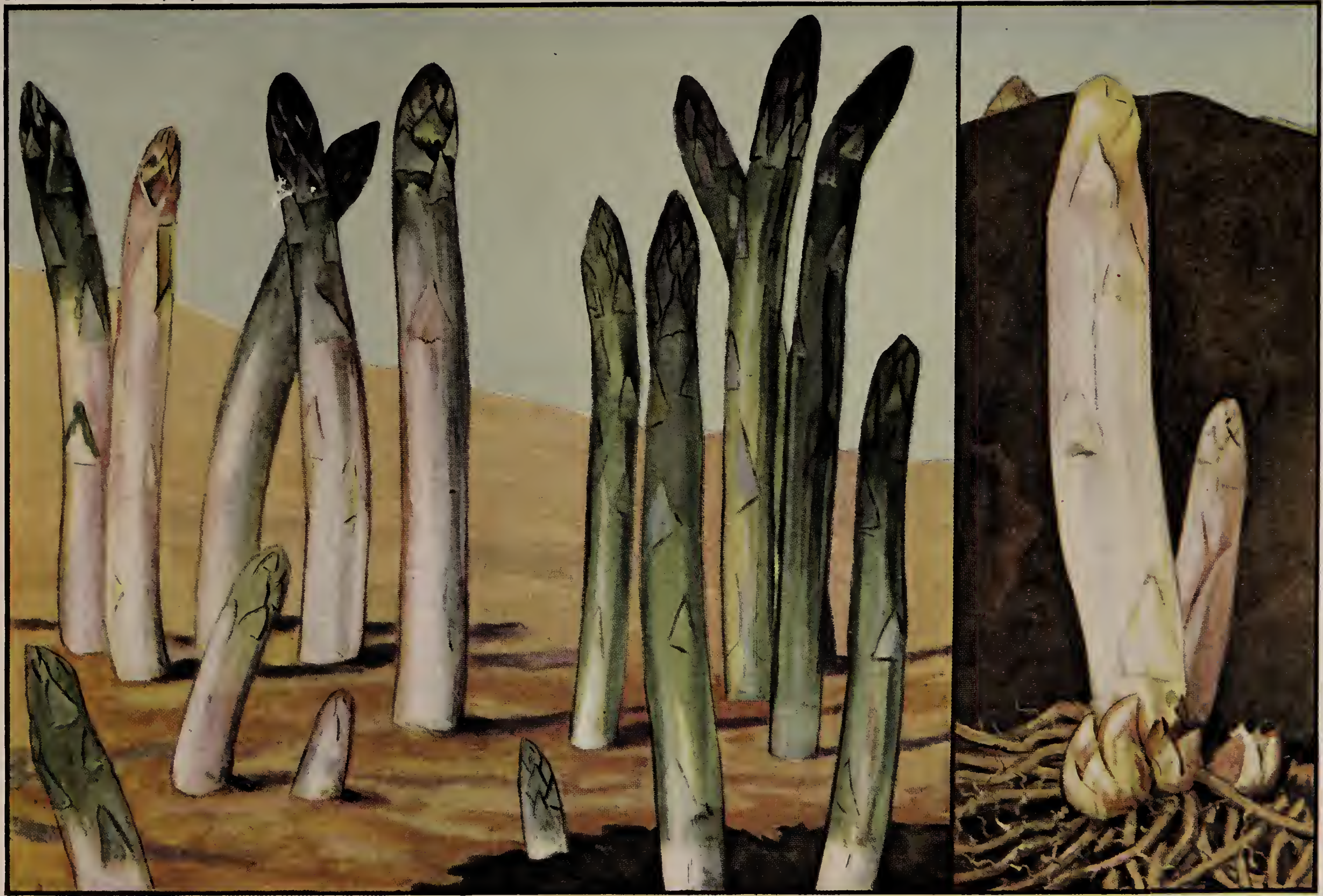
An asparagus bed will continue to produce for a century but it is at its best between the third and sixth years. Its commercial productivity is generally limited to ten years as the stalks become smaller and less desirable with age unless fertilization is very heavy. The roots are buried from four to ten inches below the level and the sprouts, or spears, are cut as soon as they reach the surface or a few inches above it and are then tied in bunches for the market.

The extension of cultivation has resulted in changing asparagus from a vegetable almost exclusively for the well-to-do into one within the reach of nearly everybody, and it is fully as popular canned as fresh.

The two principal market divisions are into the "green," in all sizes and qualities and varying from bright green to purplish; and the "white," generally more or

Brown Bros.

Harvesting white asparagus—the stalks in the foreground were freed of earth for the taking of the photograph



"White," or "Purple," growing above-ground

Green

White, growing below-ground

ASPARAGUS

less tinted with purple, and usually large. The white is obtained chiefly by deep planting of the roots or by banking earth up around the shoots but some special varieties grow nearly white without this assistance. See the color-page facing page 14. The preference for one or the other is in some parts a matter of fixed local sentiment, and in others is subject to changing fashion. New England and southern trade prefers the green; the west and northwest, the white; and New York vacillates between the two. California and New Jersey lead in production.

Fresh asparagus should be eaten as soon after gathering as possible, for it quickly loses its delicate flavor. In cooking, the best method is to stand the bunch on end, leaving about an inch of the tips above the surface of the water. In this way it is possible to cook the spears thoroughly without destroying the appearance of the tips.

ASPIC, a clear, savory jelly made from meat and used to decorate entrées, tongues, salads, etc. The word is derived from "spike jelly," i.e., jelly flavored with "spike," or "French," lavender, at one time a popular dessert.

ATKAFISH, or Atka-mackerel, an excellent food-fish of the North Pacific, plentiful around the Aleutian Islands. Its average weight is from two to three pounds, and most specimens are marked by vertical bars which may be almost jet black.

AVOCADO, or Alligator Pear, a tropical fruit, native to Mexico, Central America, and northern South America, now widely grown also in the West Indies and in Florida and other southern states.

The tree is a fine spreading evergreen with large leaves of oval shape and bright green color, a free producer under good circumstances. The fruit, big and heavy, weighing up to four pounds, consists of a single large, rugged seed, wrapped in a membranous cover, inside a firm, buttery

Avocados

flesh of bright greenish-yellow, containing from 10 to 20% of greenish oil. The outer skin is tough and leathery, varying in color, that of some fruits being bright green, that of others dark purple, yellow, brownish green, red, etc. The most common shapes are the round, pear, and oval. The large, green fruits are generally considered the best. Two good specimens are shown on the color-page opposite.

Avocados have advanced considerably in favor during recent years. They deserve still greater popularity as the large percentage of easily digested vegetable oil, or fat, makes their flesh exceptionally nutritious. Their protein content also is high for a fresh fruit. In some parts of Central America, and notably in Guatemala where there is a great scarcity of meat and fish, it forms one of the main articles of diet—a good-sized specimen, four or five tortillas, and a cup of coffee, being considered a satisfactory meal in native households.

The avocado is primarily a salad fruit to be served in halves or sections to be eaten with salt (and pepper and vinegar if desired), or with a little lime, or lemon, juice and sugar—or the flesh may be cut in slices or cubes, and similarly dressed or served with French salad dressing. If the flesh is cut into little grooves with a sharp knife, the dressing will be more easily absorbed. As a salad, it should always be thoroughly chilled before serving. It is also combined in soups and cooked as a vegetable.

The fruit is just right for eating when it will yield gently to a slight pressure of the fingers. The skin is then easily peeled off the pulp, and the latter presents a consistence much like that of well made butter.

The title ''alligator pear'' is deservedly losing ground. It is, under present conditions, a misleading misnomer and should be consigned to oblivion. The smooth skin of the fruit conveys no suggestion of an alligator or its skin, and its flesh has not the slightest similarity to that of the pear. The ''pear'' part of the name probably found its origin in the original pear-shape, and the ''alligator'' as meaning ''worthless'' in the disappointment of those who ate of the ''pear'' anticipating a feast of sweet, juicy fruit and finding instead their mouths filled with a rich and nut-like, but oily, buttery flesh.

With the ''pear'' title abolished, and with it disappearing the suggestion of a sweet fruit, the ''avocado'' is to the average palate a very pleasing addition to the diet.

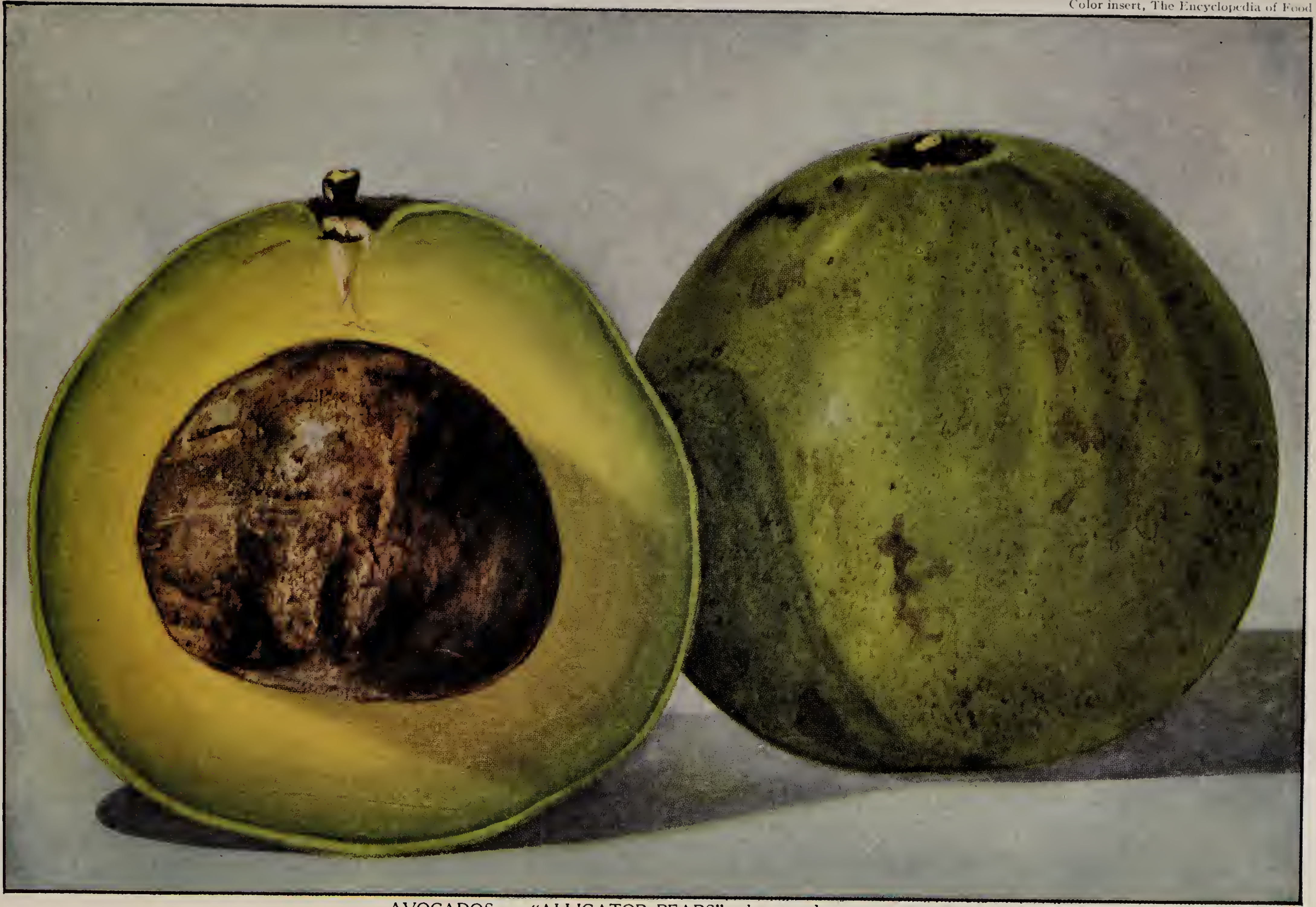
The avocado has numerous local and colloquial names, some of them self-explanatory, as ''midshipman's butter,'' ''vegetable butter,'' ''butter pear.''

The word ''avocado'' is Spanish for ''lawyer,'' but this is merely a development of a phonetic substitute for ''ahuacatl,'' the Aztec name for the fruit.

BACON, the cured and smoked meat of the back, sides, belly, and breast-pieces of the pig, the breast-pieces being generally employed for choice ''breakfast bacon.''

In buying, one should look for thin rind and fairly even streaking of tender, red lean and firm, white fat. That with yellow fat should be avoided. Instead of purchasing by the pound and having it cut in slices, the average householder will do better to take a whole strip in canvassed, or wrapped, form. If freshly cured when bought and if the cover is replaced each time after opening, it is easily kept in good condition until consumed.

Bacon is a nutritious as well as popular article of diet. Some people of sedentary habits find it difficult to digest but the choicer qualities are frequently prescribed in



AVOCADOS, or "ALLIGATOR PEARS"—the round green type

invalid dietaries in place of cod liver oil and similar preparations, the curing and smoking of the bacon-fat aiding in its assimilation.

Broiling is the best method of cooking, but careful frying will do fairly well. The slices, or rashers, should be very thin—not fewer than six slices to the inch. The skin on the one side and the smoke-colored edge on the other should be cut off before cooking. The broiler or pan should be warm before the slices are put on and the fire should be brisk. Some people like the bacon crisp, but it is more acceptable to the average palate when nicely browned but still elastic. It should be eaten immediately after cooking, as if allowed to stand for any length of time both flavor and tenderness are lost to a large extent.

Bacon should be kept in a cool, dry place. It should never be exposed to the sun. This injunction applies with special force to sliced bacon packed in tin and glass.

BACTERIA, or Schizomycetes, a general title which embraces a great many varieties of micro-organisms. With a few exceptions they reproduce by fission—the full grown bacterium multiplying by dividing itself, instead of producing others by budding (as do most yeasts), or by seeds, or spores (as molds). They are found in three chief forms—round, straight-rod-shaped, and spirally-twisted rod-shaped. They are of vegetable nature but some types are motile, the power of movement being often due to hair-like processes called flagella. They are so small that they are discernible only by means of microscopes of high power—even the width of the finest needle would, compared with a bacterium, look like the width of a man's thumb beside a speck of dust. They are as a class the most important, both for good and evil, of all micro-organisms—the most numerous, the most vigorous—and the most difficult to control, for they are practically omnipresent and millions may result within twenty-four hours from a single active specimen left undisturbed.

Bacteria are found in great numbers in various parts of the human body. Under normal conditions the presence there of some kinds is not only harmless but is probably necessary to health and life—for there are, from the human standpoint, both "good" and "bad" bacteria, and it is believed that we need the former to guard us against or to counteract the latter.

In addition to their functions in the human body—which subject belongs rather in the province of the physician than the layman—and their value in the general economy of the universe—which is too wide a subject for discussion here—many species of bacteria, properly controlled, are of great value in food production. Their presence in various articles assists digestion both by the chemical changes effected and by producing flavors which stimulate the secretion of digestive fluids not excited by flavorless articles of diet. Some varieties, for example, are essential adjuncts of butter and cheese making. One thousand million lactic acid bacteria to the square inch is a conservative estimate for well ripened cream ready for churning. Some are indispensable to agriculture and other industries. Yet, nevertheless, despite all these good counts in their favor, the housewife should, in her ordinary round of duties, look upon bacteria as enemies to be fought at every turn. They are far more generally destructive than either yeasts or molds, and some of them are always at work in all kinds of moist food (unless very acrid or heavily salted or spiced or sugared, or otherwise cured) except it be held at the freezing or boiling point, or hermetically sealed after sterilization. Freezing will stop their increase but only heat considerably above the boiling point, or long continued boiling, is a sure destroyer of all kinds. All real putrefaction is due to their action—the breaking down of the structure of the food as they feed on certain elements in it, and other changes caused by their growth and multiplication. Their uncontrolled access to food and undisturbed continuance in it are certain to result in loss, and sometimes in danger to health and life. Among the most actively menacing is the spore-bearing *Bacillus botulinus* referred to in the concluding paragraph of *Home-canning* in the article on CANNED GOODS.

Daylight, sunshine, and cleanliness are opposed to bacteria, so stores and homes, and especially kitchens, should be blessed with all three as a preliminary safeguard. Next, fresh meats, canned goods (after opening), and similar foods should be eaten as fresh as possible, and all unsound foods—either animal or vegetable—should be avoided. When immediate consumption is impossible, a good refrigerator offers a considerable measure of temporary protection, but it is only temporary, for the growth of some kinds of bacteria is checked by nothing short of freezing. Dried (or "dehydrated") food must also be protected from the possibility of absorbing moisture or it will regain the vulnerability that was removed by the drying process.

See also references in the articles on BUTTER, CHEESE, MILK, and VINEGAR.

BADIAN. See ANISEED.

BAKING POWDER, a compound used in place of yeast, in which an acid acting upon an alkali generates carbon dioxide ("carbonic acid gas") and thus causes the dough or batter to "rise." As this action takes place as soon as the powder is moistened, the dough is made ready for baking more promptly than with yeast.

The alkali employed is nearly always bicarbonate of sodium ("baking-soda"), and cornstarch is generally used as the filler. There is, however, a wide variation in the acid constituent, and baking powders may therefore be conveniently classed according to its nature. They may be recognized as follows:

(1) Tartrate powders, in which the acid constituent is cream of tartar or tartaric acid.

(2) Alum powders, in which the acid constituent is generally aluminum sulphate.

(3) Phosphate powders, in which the acid constituent is some form of phosphoric acid.

The "filler" is commercially necessary in order to absorb atmospheric moisture and thus to prevent the premature activity of the acid and alkali. Without this protection, only baking powder just freshly made could be relied upon except in very dry climates or very dry weather.

In the process of baking, the chemical constituents undergo certain changes, so that the residue in the finished bread is of different character from the original ingredients. That left in food, when tartrate powders are used, is rochelle salts; powders founded on phosphates deposit calcium and sodium phosphates; and alum powders leave glauber's salt and a salt of aluminum. The quantity is, however, in each case very small.

The use of a leavening agent (whether baking powder or yeast) not only enhances the appearance and flavor of food but also aids its digestion by rendering it more easily acted upon by the stomach secretions. This merit is, however, lost—or is at least counterbalanced—when excessive quantities of leavening are employed.

DIGGING EDIBLE BAMBOO SHOOTS

The date when baking powder was first manufactured is involved in some doubt but it is known that it was made by a Boston firm prior to 1855, the common name then being "yeast powder." Phosphate powders first appeared in 1857, cream of tartar powders in 1867, and alum powders about the year 1875.

Care should be taken to keep baking powder in a dry place as undue dampness breaks down the protection of the starch filler and causes the powder to lose its strength.

BAKING-SODA. See under the head of Soda.

BALM, Balm-mint, Lemon-balm. See Garden-balm.

BALYX, a European, originally Russian, term for salted or smoked sturgeon.

BAMBOO SHOOTS, a favorite vegetable of China and Japan, are young shoots of the bamboo-plant, cut (preferably) as soon as they show their tips above the surface. They develop from an underground rootstock and are protected by tight, tough, overlapping sheaths. With the sheath stripped off, the white shoot it has concealed is ready for cooking. Large specimens will average several inches in diameter and weigh several pounds. They are sometimes banked up—as in asparagus cultivation—in order to obtain a greater underground length. Their flavor, suggesting the artichoke, and their firm flesh are attractive to many Occidental palates also, and make them a highly approved addition to the ordinary list of vegetables. They may be eaten in many ways—cut in lengths or pieces of moderate thickness and plain boiled in salted water, to be served in any style suitable for asparagus; or in long thin strips, deep-fried in very hot peanut or other oil until crisp—then to be eaten without a moment's lost time; or added to soups or stews; or salted and served with rice and butter, etc., or pickled, or candied. In this country they are obtainable fresh in only a few localities but the canned product can generally be secured in the larger cities.

The species most extensively cultivated for its shoots is that illustrated in color opposite — the *Phyllostachys mitis* — or, in Japanese nomenclature, the "Moso Chiku." It is one of the largest, reaching a diameter of six inches—and occasionally a still greater size—and a height of fifty or more feet.

In some parts of Japan, the moso plantation is stunted by decapitating every plant as it reaches twelve feet or so in height—the leafing branches then uniting in a dense low canopy. The result of this practise is a larger crop of small shoots which are more easily marketable than the very large shoots of the fully developed moso grove.

If undisturbed, the new bamboo emerges in its full maximum diameter, but tender and very fragile, and climbs swiftly upward. Under favorable conditions its growth is prodigiously rapid. A height of twenty feet is commonly obtained within the first six or seven weeks—under favorable circumstances, growth may be a foot, or even a good deal more, within twenty-four hours. The entire succession of internodes, or sections, is sheathed in the same style as the shoots, and the sheaths cling until the plant has made two-thirds of its growth, or thereabouts, then peeling off to permit the leaf branches to appear and exposing the highly polished, fresh, green surface of the cane proper. The sheaths are carefully gathered up to be made into hats, sandals, etc. In some other varieties they are much more tenacious than in the moso, and they differ also in color and other details.

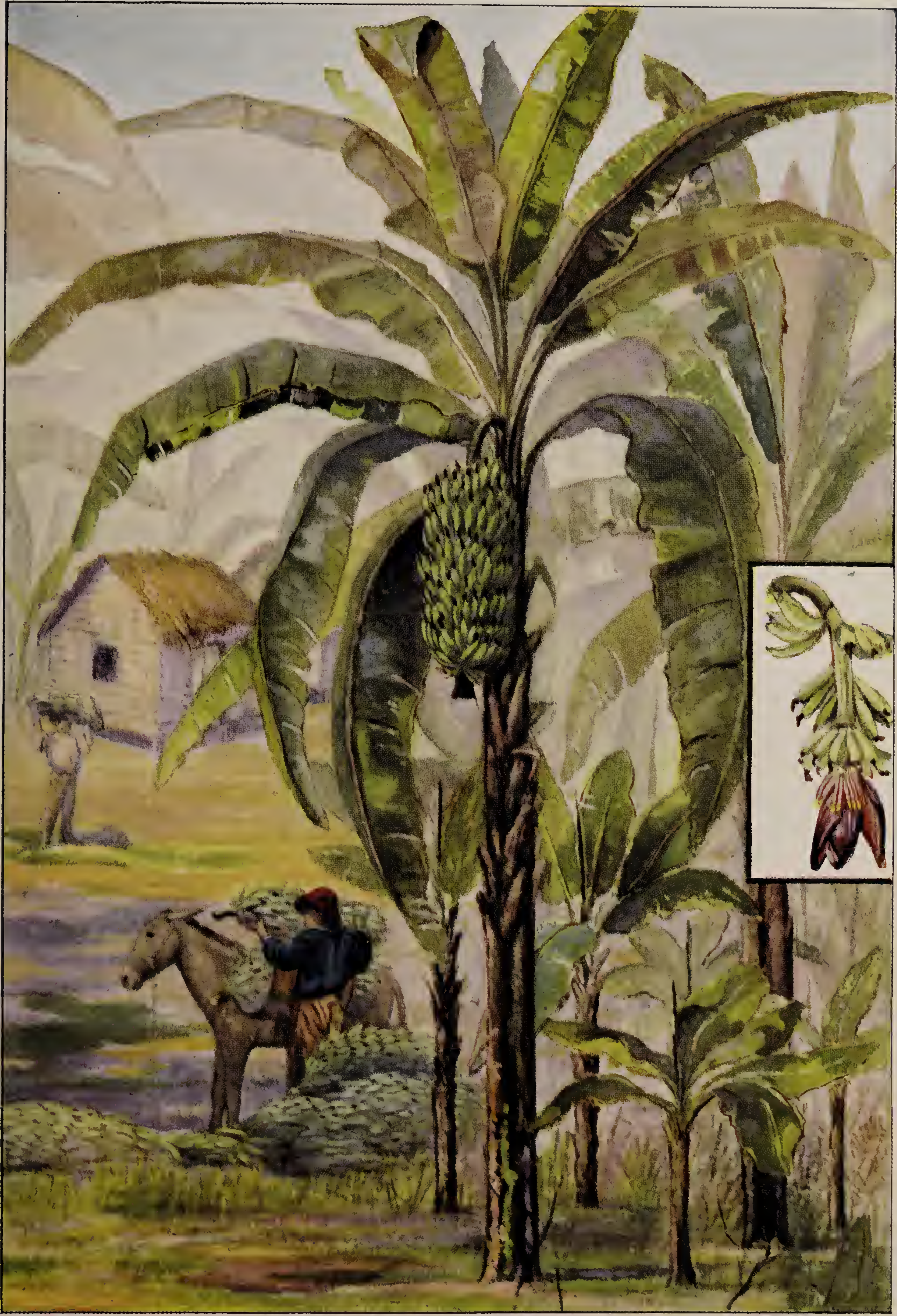
BANANA, the most prolific food-plant known, a native of the East Indies, now cultivated in all tropical countries. It is palm-like in appearance but its apparent trunk consists of the overlapping of long, vertical leaf-stalks sent up from an underground rootstock. This trunk is in the dwarf types (Cavendish, or Chinese) only about four feet in height, but in the most widely known varieties it reaches from twelve to twenty, up to even forty feet, with a diameter in the latter case of twelve to twenty-four inches. The leaves spread out from the top of the sheath, each from six to twelve feet in length by two feet or so in width.

Up this sheath travels the flower-stem, emerging through the crown and drooping from it with the weight of its head. This head consists of large, highly colored leaves, or bracts—generally red or purple, sometimes pink or yellow—folded close in a thick spike. The flowers—small, tubular, and inconspicuous—are concealed in the axils of the bracts. Presently, commencing from the base (the stem side), the bracts open outward, one after the other, exposing the blossoms to the tropical light. After this, progress is rapid. The slender little ovaries quickly develop into bananas, layer by layer in semi-circles around the stem—the latter steadily elongating in order to give each layer, or "hand," plenty of room—until in some cases the bunch contains as many as 300 fruits. Not all the blossoms thus develop. Those hidden within the point of the spike die imprisoned and unproductive—the point itself presently falling unopened to the ground—and yet others which open immediately above them wither and drop off without setting fruit.

As will be noted in the color-page opposite, bananas do not grow on the plant as they hang in the store, but with the small end of the fruit pointing upward. A standard size bunch has nine "hands," or "ridges," or "layers," to a stem, with from ten to fifteen bananas to a "hand." Those shipped to the United States generally range from seven to twelve hands.

Brown Bros.

A Central-American banana porter



A BANANA PLANT

Its blossoms
(Greatly reduced)

Smaller and excessively large bunches are considered equally undesirable.

Bananas are not as a rule allowed to ripen on the plant. For local consumption they are cut when fully developed but still of an unripe yellow or green; for shipment, they are always cut green. Our market is supplied chiefly from Central America, with Jamaica, Colombia, and Cuba next in order. It is especially in the rich river bottoms of the Atlantic side of the Central-American watershed that the plant reaches its maximum luxuriance of growth.

The plant is cut down after the fruit is taken—a younger shoot from the underground rootstock taking its place. This course is repeated for about ten years, when the vigor of the rootstock generally decreases and it is replaced by a new cutting. The fruiting age of each shoot, or plant, is about ten to twelve months.

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A great banana plantation near Port Limon, Costa Rica

For commercial purposes, the banana is cultivated with a great deal of care. It is set out in hills and rows—much like maize, except for the larger distances separating the hills—and it is carefully weeded and watched and protected from gophers. The excess of "suckers," or shoots, is also removed, and those permitted to remain are selected sizes to ensure a quick succession of fruiting plants.

As a native food, on the other hand, the banana needs—and receives—very little attention, all that is necessary being to loosen the earth around the roots each season and to remove excess suckers and plant them at requisite distances.

The yellow fruits are everywhere the most plentiful but the red types are raised in considerable quantities in Cuba and Central America. Their respective merits from a consumer's standpoint are entirely a matter of individual opinion. The yellow are preferred in the trade because the red are inclined to break from the stalk.

The "fig," or "lady-finger," banana—very small, thin-skinned, and yellow—is the variety most esteemed in tropical countries. Its flesh is finer and its flavor very soft and sweet. It is infrequently exported as it does not stand transportation as well as the common varieties.

The fruit of the dwarf Cavendish is also preferred by many people to that of the ordinary banana but except in Barbados it is not much cultivated in the Americas. It is rich-flavored and of good size but it also is thin-skinned and very perishable.

When received by the dealer or retailer in green condition (as ordinarily) bananas should be held for ripening in a moderately warm room or cellar. Both cold and excessive heat will prevent them from maturing satisfactorily. When ripened they are especially sensitive to low temperature and will readily deteriorate in flavor and other respects in any place where the thermometer registers below 50° Fahr.

In selecting bunches, preference is given to those with stems still greenish and bearing fruit that is full and plump. If the fruit is thin or flat looking, it was probably cut too soon, and in that case, though it may ripen and become yellow, it will never attain the flavor and delicacy of that properly developed on the plant. Some varieties are naturally more or less "flat" even at their maximum development, but as they are generally inferior in quality, the average retailer finds it safest to adhere to the rule to take only those that are plump.

Properly selected and carefully and fully ripened, the banana offered by your retailer is just as delicious as the fruit eaten by the tropical planter himself.

The *degree* of ripeness should be more carefully noted than is the general custom. A banana is not fully ripe—and should not be eaten raw—until its skin has taken on a rich yellow, speckled with brown spots. A plump, sound banana thus ripened is as wholesome as it is delicious, and as readily digested as any other fruit. So, too, is a banana in the yellow stage (or even the green fruit) if baked. But raw underripe fruits—which includes all bananas before the brown spots have begun to show—are liable to produce digestive disturbances and should never be given to children. The greater part of the nutriment in the ripe fruit is in sugar form; that of the unripe is in starch, as in potatoes. To eat a banana before the brown spots show is dietetically very much the same as eating a raw potato—except that a raw potato would not be swallowed in barely chewed lumps as a child is liable to consume a banana!

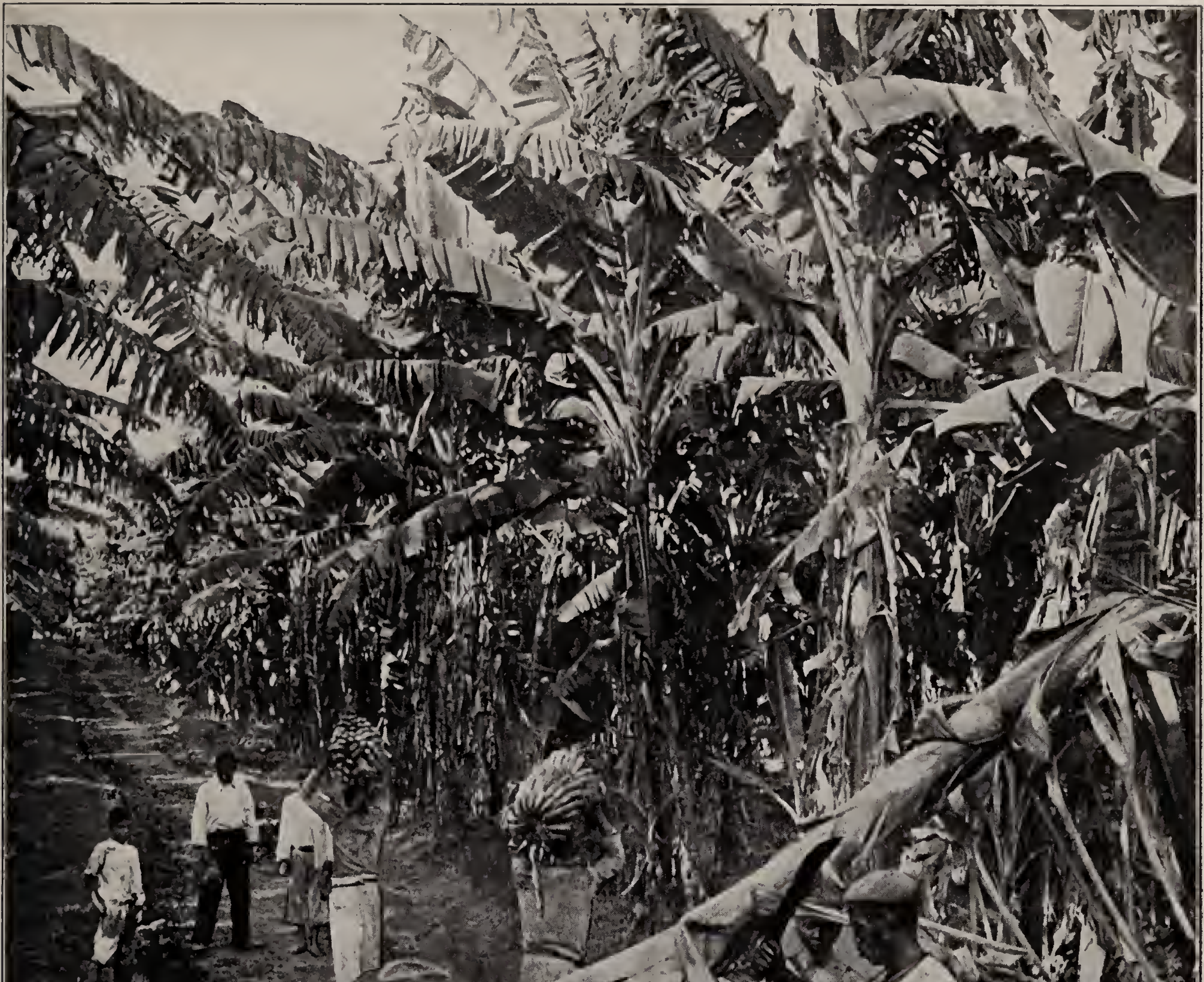
The spots may spread freely and cover the peel, but over-ripeness has not set in until the flesh begins to soften and change color. The brown ripening spots must not though be confused with dark blotches which tell of bruises, for molds and yeasts quickly invade an injured fruit.

One good-sized banana equals two average slices of bread in energy value (see FOOD VALUES).

Unless for immediate consumption out of hand, bananas should be *cut* from the "hand" or bunch—and, in cutting, a piece of the stem should be left on each fruit. If cut too close, or if broken off, nature's hermetical sealing is destroyed, one end of its flesh being exposed to all the dust and micro-organisms of the atmosphere.

In tropical regions the consumption of the raw ripe fruit is supplemented by various other uses, both ripe and unripe. It is baked and otherwise cooked, both as a vegetable and dessert, made into flour for bread, dried black in the sun after the manner of figs, preserved with sugar and with vinegar, and pressed and fermented to yield a spirituous drink resembling cider.

Varieties which require cooking whether raw or ripe in order to be acceptable articles of human diet, are generally styled PLANTAINS (which see). Some of them are of extraordinary size.



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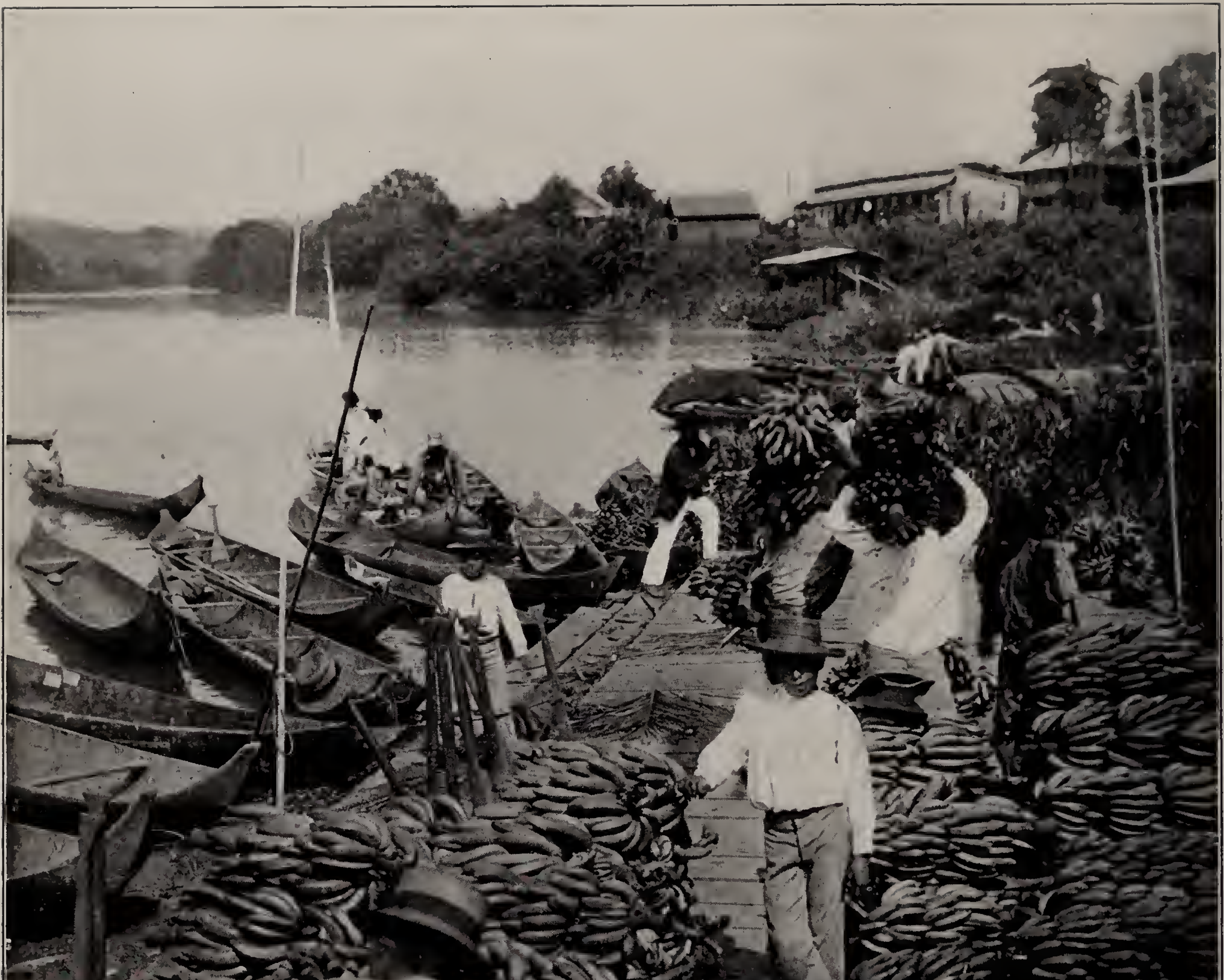
Gathering bananas, Jamaica



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Loading bananas on the Chagres River, Panama

BANNOCK, in Scotland and the northern counties of England, a flat, round cake made of coarse oat, rye, or barley meal, baked on the hot hearth or on an iron plate over the fire. The bannock is the primitive cake, varied in material, of every race and country.

For consumption in the United States, bannocks are enriched by adding chopped almonds or orange peel or currants, etc., to the dough.

BAOBAB, or Monkey Bread, the fruit of a low, abnormally thick-trunked African tree, grown (to a very small extent) in southern Florida. It is generally oval and ten to twelve inches in length. It is downy in appearance but under the down is a strong, woody shell enclosing a number of cells filled with a fibrous and farinaceous pulp of subacid flavor. The juice, slightly sweetened, is frequently used in the treatment of tropical fevers.

BARBADOS GOOSEBERRY, or Blade-apple, the edible fruit of the *Perescia aculeata,* a cactus with trailing branches found in the West Indies and distinguished as leaf-bearing in the ordinary sense of the word. It somewhat resembles the gooseberry, is generally yellow, and is of excellent flavor.

BARBERRY, the berry of the Common barberry, a shrub of prickly character, growing from four to nine feet in height, which in various types is found wild in nearly every temperate country. In the United States, it is particularly abundant in New England.

The fruit is elongated and commonly bright red (white and yellow in some varieties), ripening in October and November. It is too acid to be generally acceptable for eating raw, but it makes excellent pies, preserves, and jams. The famous French

Barberries

jam known as *Confiture d'épine vinette* is manufactured, principally in Rouen, from a seedless barberry.

Barberries are also used in France for the manufacture of malic acid. They contain, in addition, a small percentage of citric acid.

The young leaves of the shrub are of a bitter but pleasing flavor and sometimes serve as a salad and for garnishing.

BARCELONA NUTS. See reference in the article on the FILBERT.

BAR-LE-DUC "JELLY," a famous preserve, originally of selected whole white currants seeded by hand without impairing their shape, but now also of gooseberries, strawberries, raspberries, and other fruits, manufactured in the French town of Bar-le-duc. The popular term, "Bar-le-duc *jelly*," is misleading, for the typical product is a preserve, the berries (except for the removal of their seeds) remaining intact in a thin sirup. The title "Lorraine jelly" is sometimes used, the city of Bar-le-duc lying within the boundaries of the old province of Lorraine.

BARLEY (see the color-page facing 434), a grain—grown in nearly every part of the world—which has apparently been cultivated from the most remote antiquity. It was perhaps the first grain crop of the human race. It has in recent generations been largely superseded in general use by wheat and rye, but up to so recently as the middle of the eighteenth century it remained the chief food grain of England, and it is still widely used for bread-making in northern Europe. It has a smaller protein percentage than wheat and rye but it is nevertheless of good nutritive value and is well supplied with minerals.

The plant grows very rapidly in the northern United States, maturing about three months after seed sowing, and flourishes further north than any other cereal. Its use is however limited here because its lack of gliadin makes it unsuitable for our common raised bread, and its addition to wheat-flour darkens the loaf.

Barley-meal—the whole grain ground—is the form in which barley is generally sold for the manufacture of malt beverages, etc., and in which it is employed in bread-making in Europe.

Pot, or "starch," barley is the grain deprived of its outer husk.

Scotch barley is the husked grain roughly ground.

Pearled, or Pearl, barley is the grain with both the outer and inner husks removed, followed by a polishing process. It is entitled to place as a "cereal" but in the average American household it is used only in soup or in the preparation of home remedies for colds, etc. The largest consumption of pearled barley, including practically the entire output of the finer grades, is among Hebrews, who prepare it both as a breakfast food and as a pudding.

Patent barley is a flour obtained by grinding pearled barley. It has none of the acrid taste found in barley-meal ground with the husks.

Barley malt. See MALT. Barley "breakfast foods" are generally of malted barley.

Barley-water (pearled barley boiled in water) is a valuable article in the dietary of infants and invalids. It is used both plain and for the modification of milk.

BARLEY-CANDY, or Barley-sugar, a sweetmeat obtained by heating sugar to 320° F., and so named because it was formerly made with a decoction of barley.

BARRACUDA. The Great barracuda (*Sphyræna barracuda*) of the South Atlantic—it sometimes measures six feet in length—has an undesirable shark-like reputation and its flesh is not as a rule particularly well liked. Its near relative, the California barracuda (*S. argentea*), is, on the other hand, much valued both as food and game. It is of the same general appearance as the Great barracuda—long and slender in body, and somewhat resembling a pike—but it does not attain either its full size or ferocity. The average catch is about seven pounds in weight. Fine specimens may reach a length of four to five feet.

BASELLA, or Malabar Spinach, a climbing and trailing tropical plant valuable to hot, dry sections as a source of excellent greens.

BASIL, a highly aromatic sweet herb, native to India, now widely distributed. Its flavor resembles that of cloves. It is used especially in turtle soups. *Basil vinegar* is made by steeping the leaves in vinegar.

The name "basil" is also freely applied to the MOUNTAIN-MINT (which see) and locally (as "basil-thyme," etc.) to one or more varieties of SAVORY.

BASS. A number of fishes of different families bear the name of "bass," both with and without qualification. The following are rated by American fishermen as among the most important:

The Small-mouthed black bass, or simply "black bass" (*Micropterus dolomieu*), of fresh waters, widely distributed and one of the finest of game fishes. It averages from a half pound to five pounds. (See the color-page facing 534.)

The Large-mouthed black bass, or "straw bass" (*M. salmoides*), also of fresh water and almost equally famous. It generally weighs from two to four pounds with a maximum of about eight.

The White, or "silver," bass (*Roccus chrysops*) of the Great Lakes and upper Mississippi Valley, attaining a weight of one to two pounds and a length of twelve to eighteen inches.

The Calico bass, or "strawberry bass" (*Pomoxis sparoides*), of the same waters—a small fish, averaging less than a half pound in weight, and of mottled appearance—dark green on silvery-green.

The Channel bass, or "red drum" (*Sciænops ocellatus*), of southern rivers and coasts—large, of silvery-grey, with (generally) reddish tints and wavy brown stripes. It may reach forty pounds or so in weight but its flesh then is over-coarse. Under ten pounds it is moderately good eating.

The Black sea-bass (*Centropristes striatus*), of Atlantic waters from Cape Ann to North Florida, averaging from one to two pounds, up to five. (See the color-page facing 470.)

The Striped bass, or "rockfish" (*Roccus lineatus*), found along the entire length of our eastern coast, and running from half a pound to seventy-five or more for some huge specimens.

The California white sea-bass (*Cynoscion nobilis*), of the genus which includes the North Atlantic weakfishes, frequently weighing fifty pounds and occasionally close upon a hundred.

BATH BUN, a kind of light, sweet roll, generally round, and usually containing currants. It takes its name from Bath, England, the city of its origin.

BAY-LEAVES, the aromatic leaves of the sweet-bay, or laurel-tree, growing wild in Greece, Italy, and other Mediterranean countries, and in some southern sections of the United States.

Among the ancient Greeks the bay-leaf was dedicated to heroism and poetry, but modern usage consecrates it to the more material pleasures of the table. The principal consumption is of the dried leaf, used as flavoring for soups, etc.

The sweet-bay and its leaves have no connection with ''bay rum.'' That owes its name to its original manufacture by distilling rum with the leaves of the bayberry (*Pimenta acris*).

BEACH-PALM. See reference in the article on the PEJIBAVE.

BEAN, the seed of any one of a large number of plants, both trailing and of erect habit, of the *Fabaceæ,* represented in nearly every habitable part of the globe and yielding one of the world's most important crops.

Beans appear to have been cultivated long before the commencement of recorded history. They were well known to the ancient Egyptians and Grecians—and when the first voyagers reached the western continent they found that here also the growing of beans (and peas) had apparently always been a common industry among the natives—their preparation of beans and corn is perpetuated in ''succotash.''

The bean of European history is the Broad, or Windsor, variety, with broad, curved pods, containing thick, bulging seeds of distinct and agreeable flavor. Closely related is the large Horse bean. Both are extensively grown in Europe, especially in England, but neither is an important crop in either the United States or Canada as the North-American climate is not suitable for their growth.

The principal beans of United States cultivation are the *Lima* and *Kidney,* both of them believed to be native to South America.

A different type of increasing importance is the SOY-BEAN, separately treated under its own head.

Lima Beans are flat and slightly kidney-shaped. They are very popular, fresh, dried, and canned, the green-seeded kinds being considered the choicest. The bulk of the world's supply comes from the coast regions of southern California.

The **Kidney-bean** is the *haricot* of the French and the *frijole* of Spanish-America. In Great Britain it is sometimes called the ''French bean.'' There are a great many varieties, capable of general classification into ''tough podded'' and ''edible podded.''

The ''tough podded'' class produces the bulk of the dried beans of commerce, variously known as ''kidney-beans''—of many colors, shapes, and sizes—or as navy beans, marrow beans, pintos, ''pink beans,'' ''red kidney-beans,'' black beans, ''red beans,'' etc.

''Navy bean'' in its broadest sense includes any small or medium-sized white bean suitable for preparation as ''baked beans'' but in the provision trade it specifically signifies the standard ''baked beans'' type—the ''small white'' bean, the ''pea bean'' (*not* the cowpea pea-bean).

Marrow beans are larger, and both white and red.

Pintos are short beans, buff, speckled with brown. They constitute an important drought-resistant crop, extensively cultivated in Colorado, New Mexico, and elsewhere in the southwest.

"Pink beans," of interior California, Arizona, etc.,—as also the Red Mexican, or "red miner," beans of southern California—are closely related to pintos.

"Red kidney-beans" are larger than the ordinary white and possess a distinctive flavor. They have long been popular in the Boston and West-Indian markets and have in recent years considerably extended their following, especially in canned form. They are excellent for chili con carne.

Black, or "turtle," beans, cultivated chiefly in the southern states, make an especially rich and excellent soup.

"Red beans," grown principally in the tropics, are less liable to cause intestinal irritation than ordinary beans, but they are difficult to handle because of their tender skins, and are therefore best canned. In appearance they look like small grades of the domestic "red kidney-beans."

To the edible-podded class belong the numerous types of wax, or "butter," beans, eaten fresh at all stages of development. A very attractive variety is the "speckled cranberry," both shell and seeds spotted or otherwise marked with red. It is largely cultivated in New England and is popular there for making succotash. The seeds are also of importance as dried beans.

Flageolets, or *Haricots flageolets,* are shelled kidney-beans of special strains, generally put up in bottles or cans but also sold dried. They are usually gathered before maturity. The best grades are of green-seeded varieties. Others are dun-colored, red, etc.

String-beans, or *Snap-beans,* or *French beans,* are immature pods of numerous kinds of kidney-beans. The best have little or no "string." They should be so young that the seeds are barely visible and should be marketed as quickly as possible after gathering. In buying, see that they are crisp and tender when broken—toughness or limpness is a sign of too great age or overlong keeping.

Canned string-beans, described for quality as "stringless," "fancy," etc., are graded by size as "extra small," "small," etc.

"Haricots verts" are French string-beans.

String-beans are also kept for winter use by salting, both for home use and retailing. Thus preserved, they are a popular winter vegetable among Germans. Before cooking, they are soaked in water over night to remove the salt.

Other Beans. Among many other interesting varieties of beans are the Adsuki, Asparagus, Cowpea, Lab-lab, Scarlet Runner, and Tepary.

The *Adsuki* is a Japanese bean which suits both the American palate and American conditions of soil and climate. It is rather small and of various colors—maroon being the most common and, in Japan, the color most desired. In Japan it is second only to the soy-bean as a legume crop and commands a higher price than any other bean. It is sold there in the whole seed and as meal and is the chief ingredient of many native cakes and confections. Its hard, brittle character lends itself admirably to grinding.

Asparagus-beans (*Vigna sesquipedalis*) take their name from the great length of their pods, which average twelve inches or more and may even exceed a length of three feet. They belong to the cowpea group. By Chinese gardeners in California they are known as "Tou Kok." The seeds are small but the green pods make an excellent snap-bean. They are used only to a limited extent in the United States, principally by Chinese and other residents of Oriental birth or extraction, but are beginning to find favor among the white residents of California. They have long been cultivated in Europe.

Cowpeas, or pea-beans, or China beans, or black-eyed peas (or beans), or corn-field peas, are grown in many varieties, bearing seeds of different types and colors. Their principal use is for forage and soil enrichment but they possess pleasing flavor and considerable quantities are eaten like other beans—in all styles—string, shelled green, and dried. They are best if gathered when they begin to turn color.

The *Lab-lab,* or hyacinth, or bonavist, or Egyptian kidney, bean (*Dolichos lablab*) —widely cultivated in India and other Asiatic countries—is under good southern conditions a heavy yielder of fruit that is excellent both as string and dried beans. There are two chief types—a white-seeded and a black-seeded. The pods are flat, short, and wrinkled. The vines are frequently grown as ornamental plants—they are attractive for arbor coverings, bearing dense clusters of sweet-scented blossoms.

The *Scarlet Runner* is known here principally as an ornamental climber but it is largely cultivated in Europe, especially in England, for both string and green beans.

The *Tepary* (*Phaseolus acutifolius,* var. *latifolius*) is a small bean native to the southwest United States. It has lately received increasingly serious attention as a dried bean because of its productivity and its adaptability to southwest conditions.

Gathering beans "down South"

It is found in numerous colors—white, yellowish, brown, blackish—both uniform and flecked or spotted. In general contour it suggests a kidney-bean—varying as that does—but some strains (including those chiefly cultivated) are markedly flattened. Its defect is a very tough skin which necessitates long soaking, and a rather strong flavor which is not always enjoyed at the first taste.

See also the references to the *Mung* bean in the article on Bean Sprouts.

Selecting and cooking dried kidney-beans. Well dried, mature beans are smooth and shiny. They should also be of uniform size and appearance, or they may not soften or cook uniformly. Otherwise, size is chiefly a matter of individual or local preference. The most important qualification is that they should cook soft. Color, other things being equal, is unimportant. The prejudice against beans that grow dark in cooking is unfortunate, for many of them are of fine quality and flavor, and frequently more tender than the very white.

The first step in household cooking is the swelling of the bean and softening of the skin by soaking in cold water for generally not less than eight hours. Some cooks cover with hot water so as to shorten the time, but the cold water method is preferable. The large lima beans after soaking may be easily slipped out of their skins by pressing between the fingers. Many other kinds may be freed from their skins by sieving or stirring in water, the skins rising to the top and being then skimmed off. After this process, beans can be boiled and served in many ways, whole, mashed as "bean pudding," in soups, etc.

The United States exports a considerable quantity of dried beans—the best markets being England and Cuba—but this is offset by importations, chiefly from Japan.

Food Value. Beans, as also peas, are rich in food value. Even when immature, or "green," they are much more nutritious than most vegetables of popular use, and when ripe, or "dry," they carry a high percentage of both protein and carbohydrates and a goodly supply of phosphorus, calcium, and iron (see general article on Food Values). With the exception of the soy-bean, it is, though, necessary to heavily discount the analytical protein credit, for much of the protein is unassimilable by the human system. The ordinary bean—valuable though it is—cannot be substituted for milk or meat or other protein providers for any considerable period without detriment to the health of the individual.

The bean's lack of fat (excepting always the soy-bean) explains the general addition of fat, as pork.

BEAN-FLOUR, pulverized dried ripe beans, used in the same way as Pea-flour.

BEAN SPROUTS. The growing of "bean sprouts"—sprouts of the tiny, green, roundish, Mung bean—is an Oriental industry worthy of general extension. They would prove a cheap, healthful, and pleasing addition to our common green vegetables, and are also excellent for use (either raw or cooked) as a salad, or in salads, as well as in soups, stews, and many other composite dishes. Their flavor is that of young string-beans. Their dietetic value is important, for they are rich in C-vitamins (see Food Values), and they can be easily grown within the most crowded city limits all the year round. If cooked, the period of cooking should be brief in order to avoid destroying their vitamin value. Two minutes' boiling is sufficient, and more than fifteen may prove destructive. If to be served in stews and soups, they are best added shortly before the completion of cooking. They are especially palatable lightly fried in good oil or butter.

In New York's Chinatown the growing is commonly done in a basement, and an essential requirement is the maintenance of a uniform temperature of about 65° Fahr. The beans are first soaked for several hours. Next, in lots of ten pounds each, they are placed in upright cylindrical cans, standing on racks, each can with drainage slits in the bottom, and a matting-cover loosely set on top. Every six hours the beans are sprinkled with water from barrels held at the temperature of the room. In four days or thereabouts they have attained the desired size. It is interesting to note their growth and steady expansion in bulk until the ten pounds of dry seeds have become fifty pounds of sprouts which fill the can and raise themselves two or three inches above its rim. The top layer is discarded as too dry and, generally, over-grown. The remainder consists of fat, succulent sprouts, an inch to two inches long, developed to the point just before leafing, with slender, delicate, single roots. They need only washing and sorting-over to be ready for the kitchen or table.

Mung beans are imported from China in large quantities, and development of popular consumption would quickly make them as readily obtainable through ordinary channels as are tea and other Oriental products if it should prove economically preferable to import them instead of adding them to our domestic crops.

Soy-beans also are successfully sprouted, but their cultivation is more difficult and their seed parts are less tender. Other seeds are not recommended. Some—as kidney-beans—develop an unpleasant odor and flavor which is removed only by careful cooking; others are satisfactory in both those respects but grow too much root.

Bean sprouts, and some ungerminated Mung beans

The production of mung-bean sprouts is an easy matter for any one who takes it up commercially, but the maintenance of the correct temperature and the necessary regular irrigation require more attention than would be given in the average household if only for family consumption. The housewife who cannot buy bean sprouts and hesitates to undertake their growing can obtain even greater vitamin value by the very simple process of germinating either mung beans or ordinary domestic peas, wheat, etc. (see GERMINATED SEEDS).

BEATEN BISCUIT, or "Maryland Biscuit," a kind of bread biscuit leavened by a repeated folding and pounding of the dough. This process encloses small quantities of air in minute blisters, and their expansion in baking makes the biscuit light and porous without the use of baking powder or other added leavening agent.

BECCAFICO, or "Fig-pecker," a small European bird—the golden, or garden, warbler—which frequents fig orchards and vineyards. As caught in the autumn, it is esteemed a delicacy throughout southern Europe, especially in Italy. Many tens of thousands of other small birds are also, during its season, killed and sold in its name.

BÊCHE-DE-MER. See under the title of TREPANG.

BEECHNUT, the seed of the beech-tree, one of the most beautiful members of the oak family, found in numerous varieties in this country and Europe. The nuts—small, sharp-edged, and triangular—grow in pairs in a rather prickly, scaly burr. Their kernels are tender and sweet flavored.

BEEF, the flesh of the adult steer, is the most important of meats, the chief staple of the butcher, and the leading food article of the average American household. The best is that of a young, stall-fed, corn-fed steer. It should be of fine, firm, smooth texture and bright, fresh, red color intermixed with fine streaks of white fat. It should retain the impression of the finger after it is removed—this is important, as old or tough beef is elastic to the touch. Meat that is pale or deep purple, that is wet and flabby, or has a sickly smell, should be avoided.

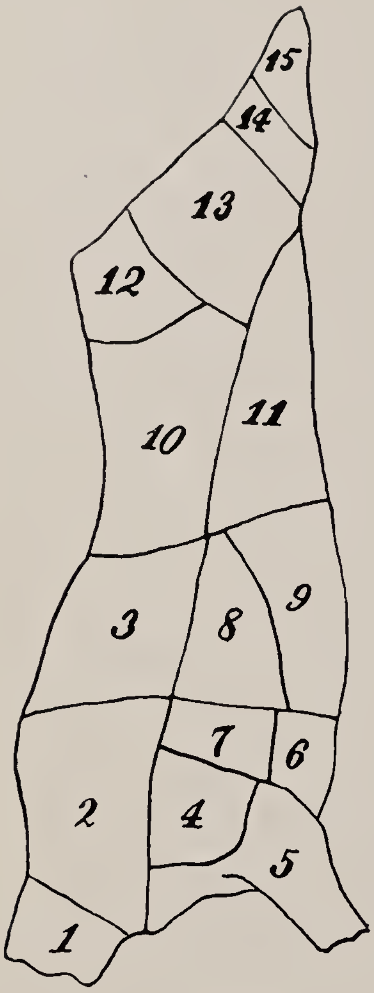
If the fat (of a healthy specimen) is yellow, the beef may still be of good quality—it is not from a stall-fed animal, but it may be of a fine grass-fed specimen matured under specially favorable conditions—but if, as is generally the case, the fat is yellow from oil-cake feeding, it has been obtained at the expense of the flavor of the meat.

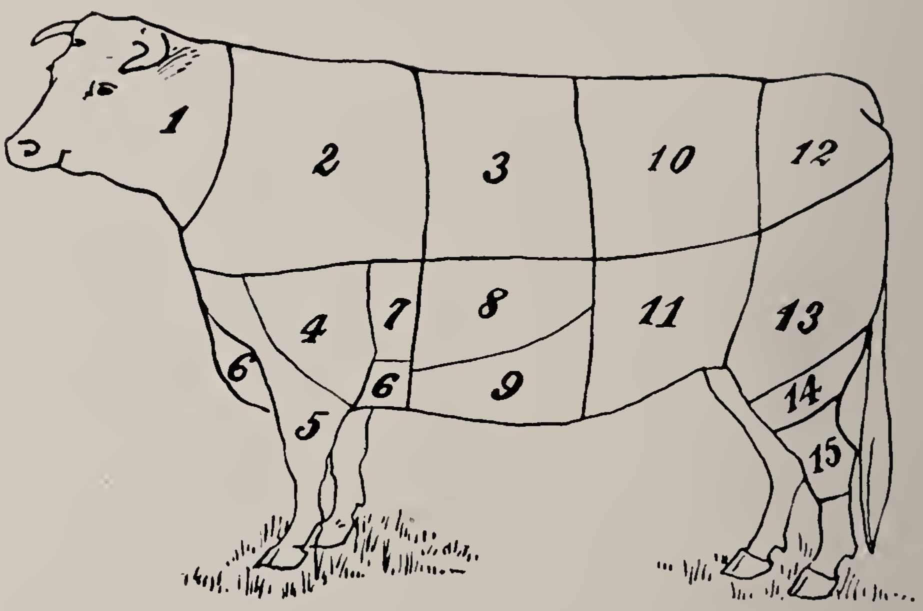
Cow beef and bull beef are also sold, but they are, at the general age of slaughtering, not comparable to steer beef in quality. Cow beef is a darker red than steer beef. When young it may be more tender than steer but it is seldom if ever as juicy or fine flavored.

"Baby beef" is that of young steers and heifers from twelve to twenty months old, specially bred and rationed for early development, and marketed at weights from 900 to 1200 pounds. They afford consumers small high-quality cuts, and permit a quicker turnover for the producer.

It is a curious, and an unfortunate, fact that in different parts of the country there are many names for the same "cut," but Diagrams I and II on page 34, adapted from a Bulletin of the United States Department of Agriculture, illustrate a very widely accepted division of a whole beef and show the relative positions of the cuts in the animal and in a dressed side.

Diagrams I and II.



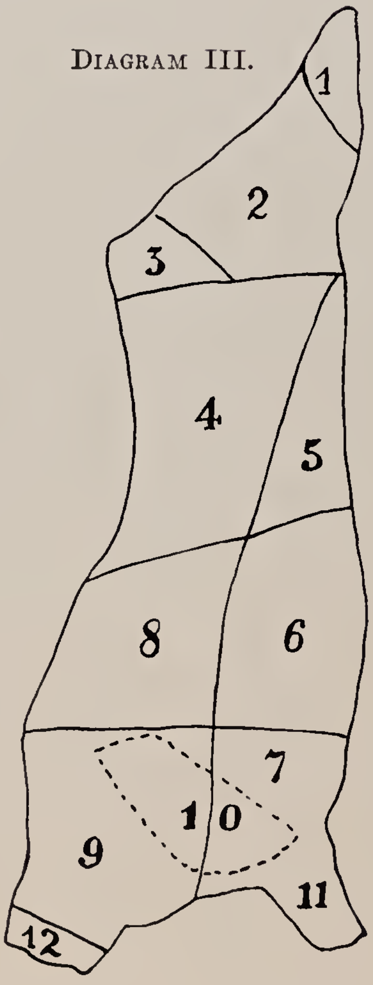


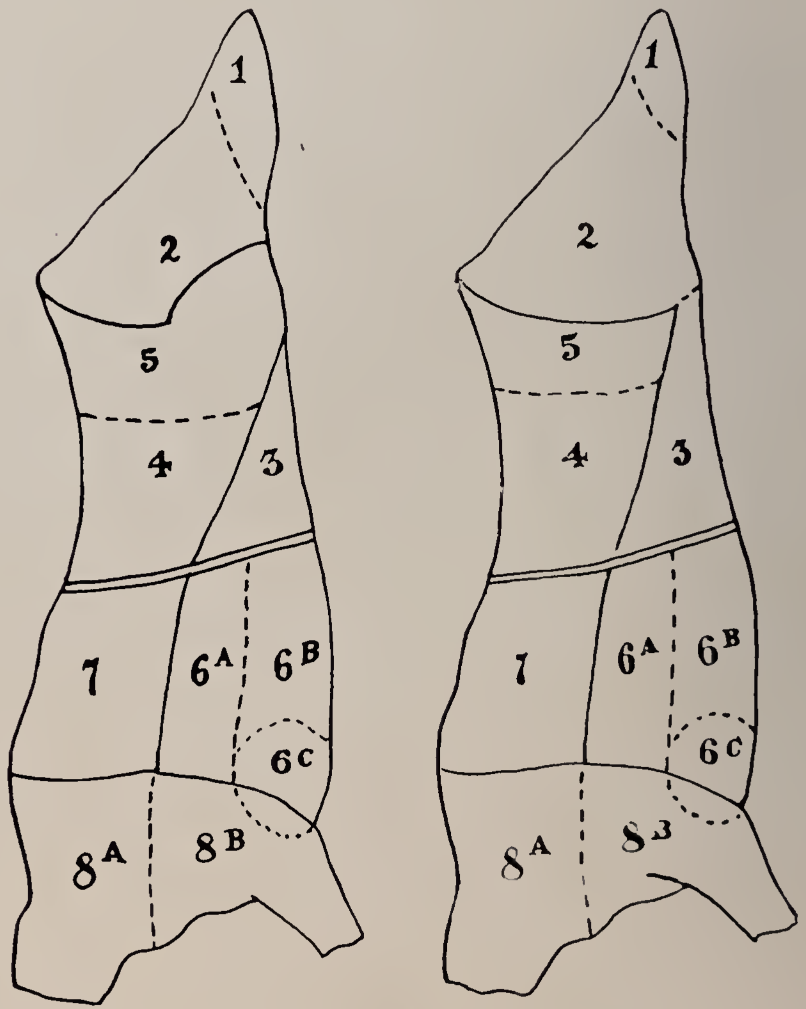
1. Neck.
2. Chuck.
3. Ribs.
4. Shoulder clod.
5. Foreshank.
6. Brisket.
7. Cross ribs.
8. Plate.
9. Navel.
10. Loin.
11. Flank.
12. Rump.
13. Round.
14. Second-cut round.
15. Hindshank.

Diagram III.

1. Hindshank.
2. Round.
3. Rump.
4. Loin.
5. Flank.
6. Navel end.
7. Brisket.
8. Ribs.
9. Chuck.
10. Clod.
11. Foreshank.
12. Neck.

Plate.—6 and 7.
Back.—8, 9, and upper part of 10.





Diagrams IV and V.
See explanation of these diagrams on page 35.

The neck-piece is frequently cut so as to include more of the chuck.

The shoulder-clod is usually cut without bone. The shoulder (not indicated in the diagram) includes more or less of the shoulder-blade and of the upper end of the foreshank. Shoulder-steak is cut from the chuck.

In many localities, the plate is made to include all the parts of the forequarters designated on the diagrams as brisket, cross-ribs, plate, and navel, and different portions of the plate as thus cut are spoken of as the "brisket end of plate" and "navel end of plate." This part of the animal is largely used for corning.

The thirteen ribs are variously divided. The general eastern "rib cut" gives eight ribs, an "8-rib roast"—one rib remaining on the hindquarters and the other four on the chuck—but this division is subject to wide variations at the wish of the purchasing retailer. The Chicago standard is a 7-rib roast.

The 8-rib roast is frequently divided into First Cut—the choicest "prime" ribs of beef—the three ribs immediately adjoining the one left on the hindquarters; Second, or "Middle", Cut, the next two ribs—and also next in quality; and Third Cut, the remaining three ribs—often called "chuck ribs" because they adjoin the chuck. Other divisions and customs bring in the terms Fourth, Fifth, and Sixth Cut.

The names applied to different portions of the loin vary considerably in different localities. With the hip it is generally known as "hip-loin." The part nearest the ribs is frequently called "small end of loin" or "small end sirloin" or "short steak." The other end of the loin is called "thick end sirloin" or "sirloin." Porterhouse steaks are cut from the "thick end." The very tender strip of meat known as the "tenderloin" lies under or inside the hip-loin, being thickest at the hip part and gradually tapering off to a very narrow piece at the "small end."

It is not uncommon to find the flank cut so as to include more of the loin than is indicated in the diagrams, in which case the upper portion is called "flank steak." The larger part of the flank is frequently corned, as is also the case with the rump.

In some markets, the rump is cut so as to include a portion of the loin, which is then sold as "rump steak."

The lower diagrams (III, IV) show two other standard divisions—No. III, a method widely accepted by Chicago and Kansas City wholesale butchers, and Nos. IV and V a popular New York wholesale division.

The following table explains the separation shown on illustrations Nos. IV and V.

HINDQUARTERS 1, 2, 3, 4, 5	*Full Round* 1, 2, 3	1—Leg, or Shin. 2—Round: divided into Top, Bottom, and Leg-Bone. 3—Flank: of mixed fat and lean, containing Flank Steak nested in "cod" fat.
	"Full," or "Hip and," Loin 4, 5	4—Short Loin: including the Sirloin and, on the under-side, part of the Filet, or Tenderloin. 5—Full Hip: divided into Short Hip (containing the large end of the Filet) and Top Sirloin (or "Butt").
FOREQUARTERS 6, 7, 8		6—*Plate**: divided into (a) Plate End, (b) Navel End, and (c) Breast or Brisket (together with part of 8b). 7—*8-Rib Cut**: divided into 3, 4, 5, 6, or 7-Rib pieces and "Chuck End" with the remaining ribs. 8—*Whole*, or *"Full" Chuck*: divided into (a) Short Chuck, and (b) Shoulder and Breast, or Brisket.

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* An 8-Rib Cut and the Plate together are known as a "Piece."

The "top round" is that part of the round on the inside of the leg. It is considered more tender than that on the outside. As the leg lies on the butcher's table, this inside of the round is on the upper, or "top", side—hence its title.

See also the four following color-pages of Rib Cuts, Sirloin Cuts, Steaks, etc.

"Boneless cuts" are supplied to retailers throughout the country by several big packing-houses. They include tenderloins, sirloin strips, sirloin butts, rib-beef rolls, loin backs, clods, etc. They are especially convenient and easy for the inexperienced butcher to handle and cut up, but some judges assert that the meat deteriorates in flavor from the loss of blood and extractives.

Beef to be at its best should always be allowed to hang for a while. For this a good refrigerator is, of course, indispensable. The temperature should be about 33° to 35° Fahr., and the atmosphere dry—the dryer the better. In cold, dry air, beef will ripen and sweeten and may safely be held a long time, whereas in a warm, moist atmosphere it will speedily become sticky and sour. It is important that the temperature should be uniform and not allowed to rise and fall.

One cannot dwell too emphatically on the importance of this proper "aging" of beef, for cooked fresh beef, even if cut from young animals, is certain to be tough, whereas beef properly aged will be more or less tender even if cut from animals conspicuous for the number of their years. "Light," or very lean, carcasses are not suitable for long aging, as their fibre is liable to marked deterioration during the process.

Beef is valuable both as a flesh-forming and energy food. It contains an average of 15% to 20% of protein and a considerable proportion of fat in an easily digestible form. Excessive consumption is however undesirable and frequently proves prejudicial to health (see also the general article on Food Values).

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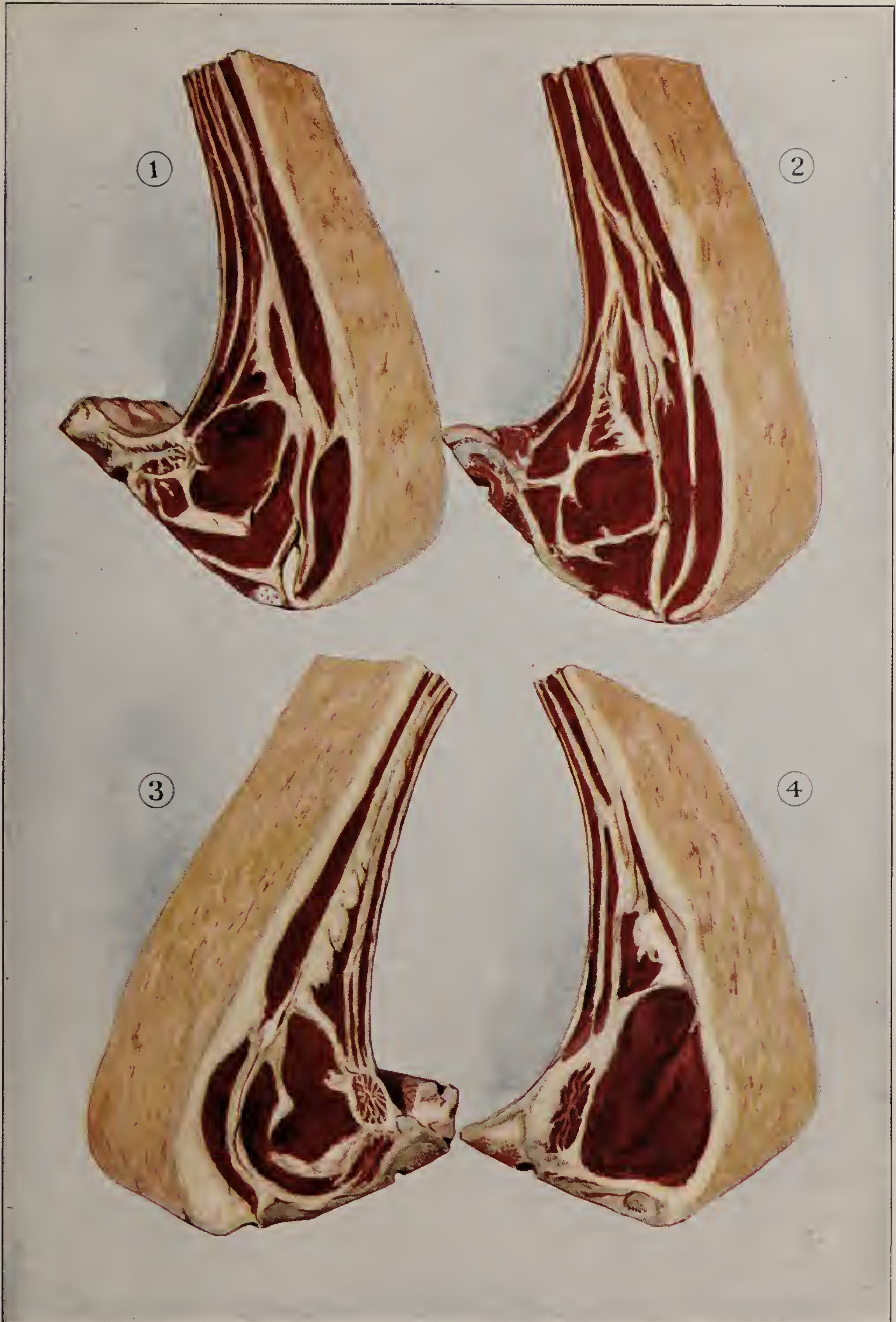
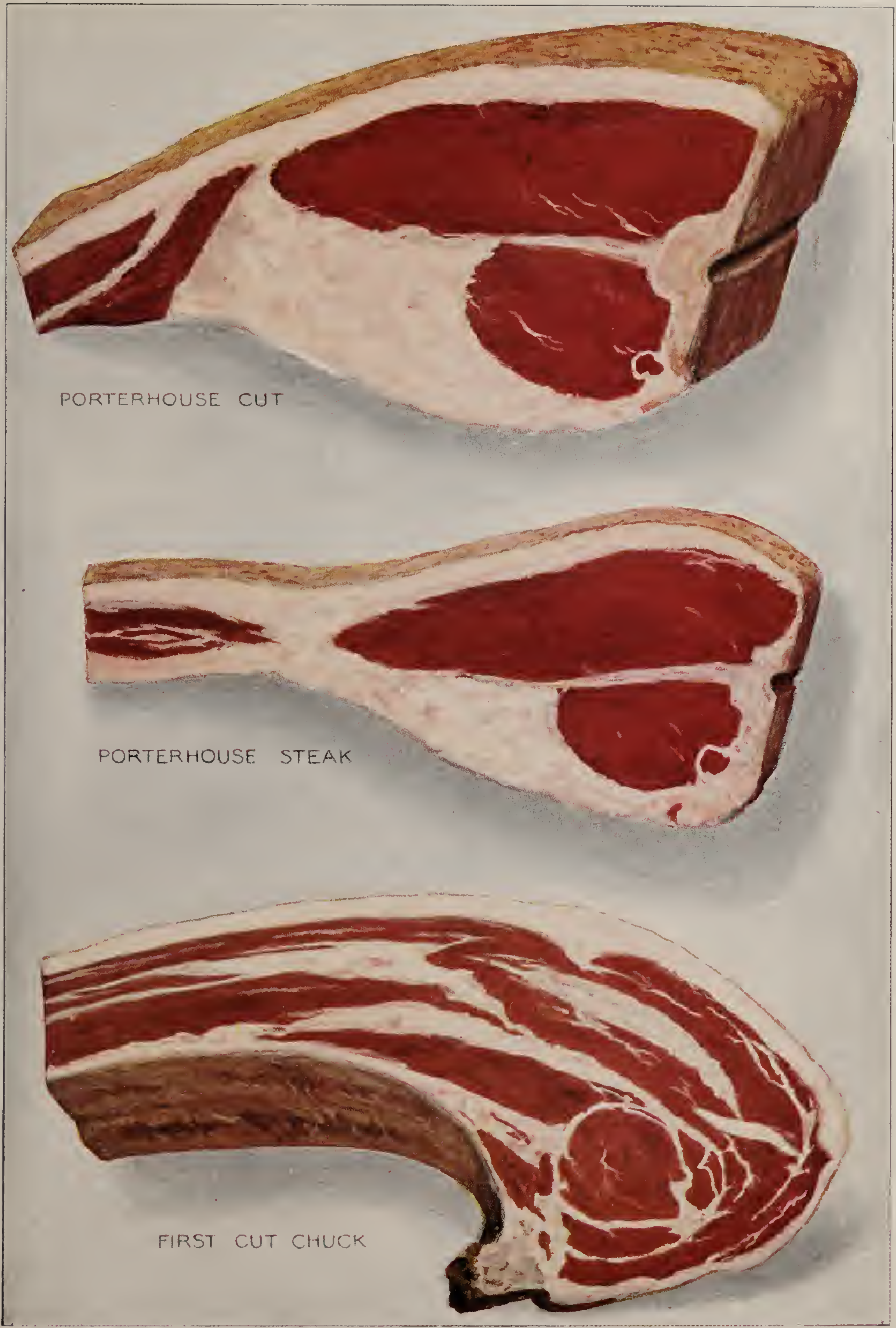
A State Fair parade of high-bred cattle

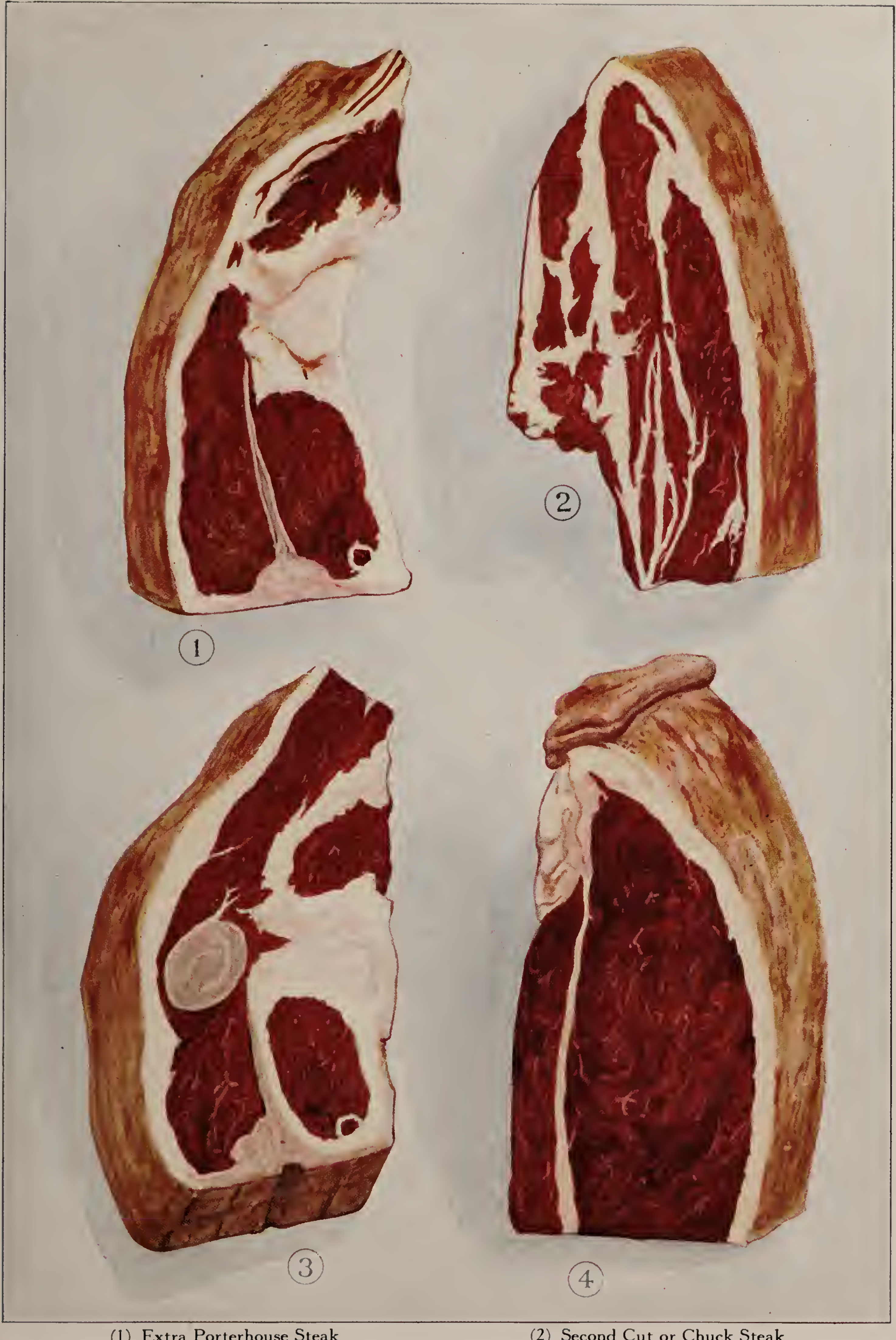


(1) Fifth and Sixth Cut Ribs
(2) Third Cut Ribs
(3) Middle Cut Ribs
(4) First Cut Ribs

BEEF



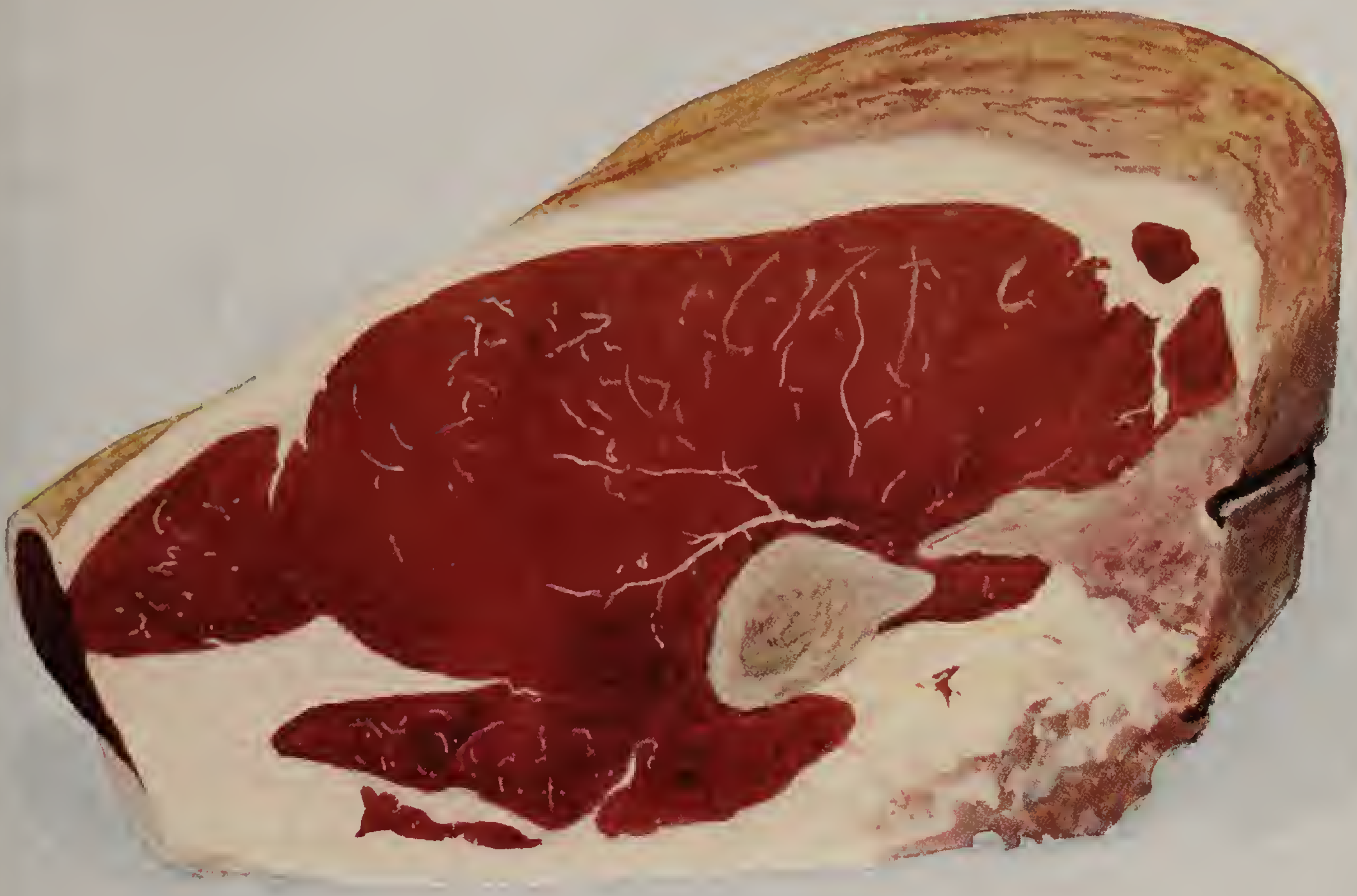
BEEF



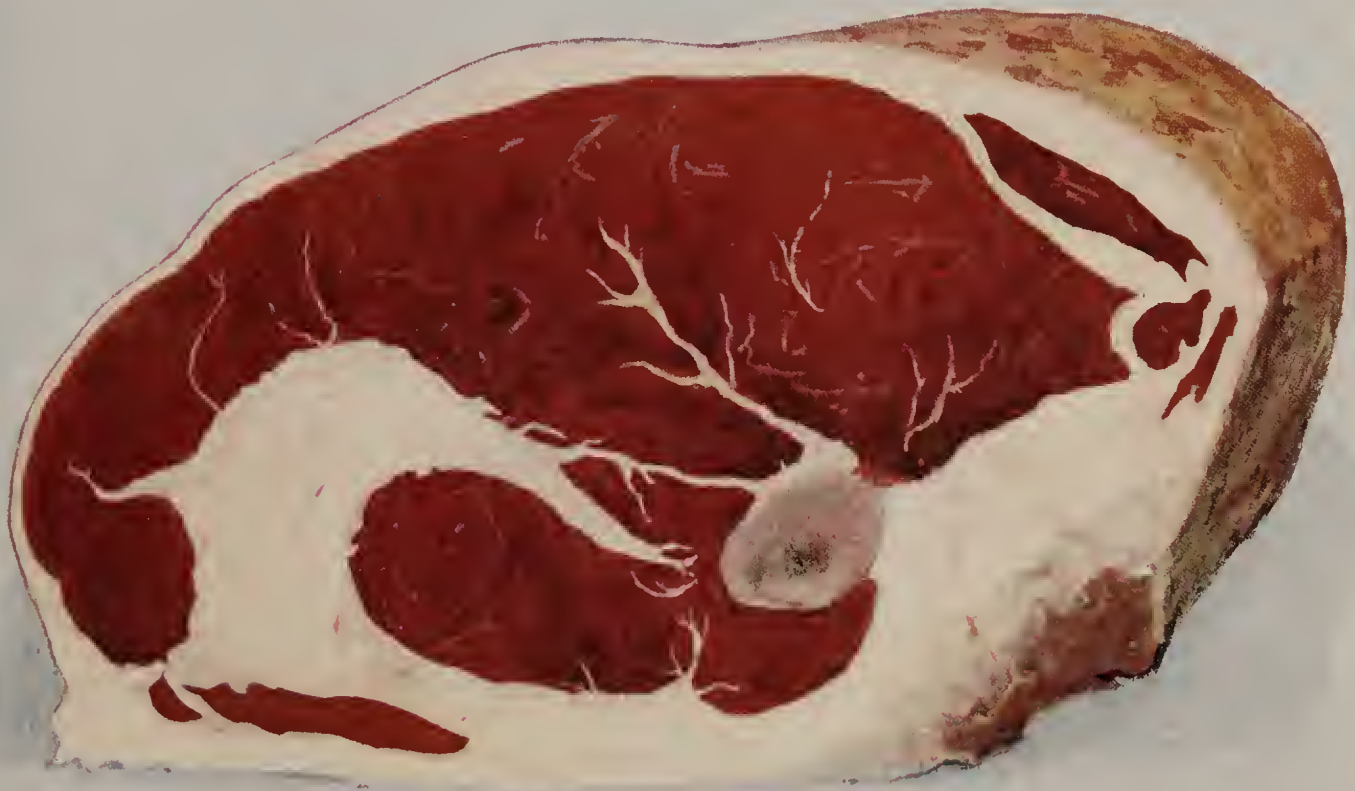
(1) Extra Porterhouse Steak
(3) Hip Sirloin

(2) Second Cut or Chuck Steak
(4) Top Round Steak

BEEF



FLAT BONE TOP SIRLOIN



ROUND BONE TOP SIRLOIN

BEEF

When heads of families realize that there are many less highly considered cuts which can, with very little extra trouble, be served in forms just as palatable and inviting as sirloin, porterhouse steak, and standing rib-roast, they will find a marked difference in their expenditures for meats. Further, such a revolution in ideas would result in lower prices for the choice cuts also—it is only natural that high prices prevail for them now as the general public thinks that there are only three or four pieces of an entire beef that are fit for the table, and all other parts have to be sacrificed at low figures or utilized by packers for their canned products.

Again, though the average American doesn't care much for boiled fresh beef, it is just as palatable as steak if properly prepared. The best cuts for the purpose are the brisket, cross-ribs, and rump—the rump is especially suitable for those who prefer lean boiled meat. The principal points to be observed in cooking are: (1) tie the meat up to preserve its shape, (2) put into *boiling* water, (3) add salt, etc., and plenty of vegetables, (4) simmer gently until done—don't let it boil and bubble away, and don't overcook it or reduce it to rags. (See also the subheads of *Broiling, Roasting,* and *Stewing* in the article on COOKERY.)

American prime beef has earned the reputation—abroad as well as at home—of being equal to the world's best anywhere. This is the result of the improvements during recent years in breeding, feeding, and shipping. The old-time long-horned Texas steer, formerly the accepted American type, is obsolete as the result of crossing with high-class imported stock, and selection of the best grades has been brought to a very fine point; range feeding exclusively has been succeeded by grain feeding scientifically controlled for a considerable time prior to slaughtering; and modern methods of transportation ensure its delivery anywhere in prime condition.

Americans are the greatest meat eaters in the world. The average consumption per capita here is 175 pounds per annum—and of this by far the greatest percentage is of beef. English people average 110 pounds per capita, the French eat only half as much as the English, and Germany, Austria, and Italy consume still less.

See also BRAINS, CORNED BEEF, HEART, KIDNEYS, LIVER, SAUSAGES, SWEETBREAD, TONGUE, TRIPE, etc., and the general article on MEAT.

BEEF-BREAD, the pancreas, frequently retailing as SWEETBREAD (which see).

BEEF EXTRACT, if of good quality, is made of fresh, prime, lean beef by boiling in vacuum-kettles, then filtering and (finally) evaporating to paste consistence in vacuum-pans. It consists principally of "extractives," or meat flavor, together with some mineral salts. The fat is removed before cooking, as it would in time render the extract rancid, and nearly all the valuable albumin is also lost—it coagulates during the stewing of the meat and is strained off together with the fibrine, etc. If well prepared, the extract is yellowish-brown and of pleasing, meaty odor and flavor. It should be entirely soluble in cold water. If it is not, it probably contains gelatin—which is too much lower in value to be profitably bought at extract prices.

Inferior grades are made from the liquor in which meat has been parboiled prior to canning, from meat and bone remnants, and from corned beef liquor.

Beef extract was formerly rated as a condensed food product of high nutritive value. That position has been abandoned and it is now acknowledged that it is entirely inadequate to support human life, but it has retained great importance in both the medical and commercial worlds as the basis of an agreeable and thoroughly whole-

International

Trailing cattle from the ranges to the railroad, Wyoming some beverage which excites gastric secretion, thus both rousing the appetite and aiding digestion. Physicians find it a valuable adjunct in the care of invalids and convalescents, for its meaty flavor lends zest to the necessarily restricted diet of the sick room. It is especially useful for mixing with milk—persons who cannot assimilate plain milk can nearly always digest it when flavored with a little beef extract. Its other uses include its employment in large quantities to give a relish to condensed foods, such as those made from pease-meal carried by army commissaries, and its similar familiar employment in the kitchen to enhance the flavor of soups and sauces. It is worth remembering that extract of meat contains those flavoring properties to which is principally due the higher market value of choice cuts.

The above comments—both in approval and derogation—apply almost equally to beef extracts reinforced by the addition of some of the nutritive constituents of the meat. Such preparations have a theoretical food value, but the available nutriment is slight in quantities of normally possible or desirable consumption.

Even beef tea most carefully made at a low temperature for immediate use in home or hospital contains only a small percentage of protein—unless it be "whole beef-tea" which contains all the meat, the entire residue after cooking for the "tea" being reduced to a powder and added to it.

Beef tea should always be served hot, as otherwise one loses much of its stimulating property.

Though most people enjoy—or at all events do not object to—the strong flavor of the best extracts, their taste and odor are sometimes found offensive by those possessing especially delicate palates. When this objection is found by a patient, it can be obviated to a considerable extent by putting a little butter, a piece of toast, and plenty of salt in the hot beverage.

Fluid extract of beef is the same product as the paste extract except that evaporation is stopped at an earlier stage.

BEEF JUICE, the blood expressed from the meat without cooking, in order to avoid the coagulation of the soluble protein. Commercially, it is then evaporated in vacuo. This product also has been greatly overrated. It has value as a subsidiary food, or as a temporary dietetic substitute, but its protein content is not high enough to be life-sustaining in the quantity that can ordinarily be consumed. Egg whites (flavored perhaps with a little beef tea) provide certainly and efficiently the protein for which the dispenser of beef juice is vainly groping.

BEEF POWDER, beef dried and ground. A famous trapper's and explorer's form is PEMMICAN (which see). In hospital practise, beef powder is generally stirred into milk or chocolate or some other liquid. For the use of invalids, the beef may be partly or wholly predigested before drying.

BEET, one of the most important food-roots. The small, delicate, garden varieties, generally round and red, are popular as a table vegetable, both fresh cooked and pickled; the sugar-beet, usually conical and white, furnishes about half of the world's sugar supply (see SUGAR) and large quantities of alcohol; and the mangels and other coarser types are valuable as cattle-food. The sugar percentage of the ordinary table beet is often as high as 10%.

For use as a vegetable, beets are generally boiled, but some people prefer baking, which gives a deeper color and retains more of the natural juices. The red-fleshed kinds are most popular but some yellow strains are fine in flavor and especially sugary.

Several varieties are grown exclusively for their tops or leaves, the most important being Swiss chard (see Chard). The green tops of young beets of the ordinary root types also make good greens. (See further references in the general article on Vegetables.)

If stored in cellars, beets should be covered with sand or soil to prevent shriveling.

BENGAL QUINCE, or Bael Fruit, an East-Indian fruit of the citrus tribe, round to pear-shaped, three to five inches in diameter, with smooth, grey or greenish-yellow rind, or shell, and sweet, pale orange-colored, aromatic pulp of excellent flavor.

BENZOATE OF SODA, or Sodium Benzoate, a salt made by adding benzoic acid to a hot solution of carbonate of sodium—the sodium benzoate appears on cooling in the form of crystals. Commercially, it is a white powder, slightly sweet and astringent. It is used to a considerable extent as a food preservative.

Commercial benzoic acid is manufactured chiefly from coal tar and by synthesis, also to a certain extent from resins, especially from Tolu (which see) and benzoin, exuded from the bark of an East-Indian tree. It is found naturally in cranberries and some other fruits.

BERGAMOT (herb), a title applied to several different plants used as herbs for their stimulating and aromatic properties, as "bergamot mint" (*Mentha citrata*) and "wild bergamot" (*Monarda fistulosa*), one of the "horse-mints."

BERRIES. See references in the general article on Fruit and special articles on individual berries.

BETEL-NUT, the narcotic seed of the areca, or betel, palm of tropical Asia. It is about the size of a nutmeg and is enveloped by a thick husk. It is best known as a popular oriental masticatory, pieces of it being for this purpose made into a pellet, or "pawn," by rolling them in a leaf of the betel-plant (a close relative of the pepper-vine). A little shell-lime is also frequently enclosed, and occasionally some aromatic. Southern Asiatics of both sexes and of all ages carry the pellets in small pouches and persistently, almost perpetually, chew them. The habit may be compared to tobacco-chewing, smoking, or snuff-taking in this country; or to coca-leaf chewing in South America.

The excessive saliva thus stimulated is red, and dyes the mouth and lips. Continuous use blackens the teeth, but addicts maintain that it strengthens the gums and aids digestion. The blackness of the teeth is not considered a defect, for it is an Oriental saying that "a white tooth is a dog's tooth."

The betel pellet is often the only refreshment offered to callers on formal occasions. It is frequently presented wrapped in gold or silver leaf, and sometimes in elegant "betel-boxes." To refuse it, may give irreconcilable offence.

The Filipinos wrap the nut in lime-smeared leaves of the Buyo, a trailing plant native to the islands.

BIFFIN, the name of a cooking apple of popular cultivation in Norfolk, England, and also (and particularly) its title when dried by very slow baking, with occasional pressing, until flat and round and soft to the touch. "Biffins" are every year prepared in large quantities in Norfolk.

BILBERRY. See Huckleberry. The title is also applied to the June-berry.

BILIMBI, Blimbling, an extensively cultivated South-American fruit, green-skinned and shaped like a small cucumber, allied to the Carambola (which see) but smaller and more acid.

BILTONG, a Dutch South-African term for strips of the sun-dried meat of antelopes, buffaloes, and other animals.

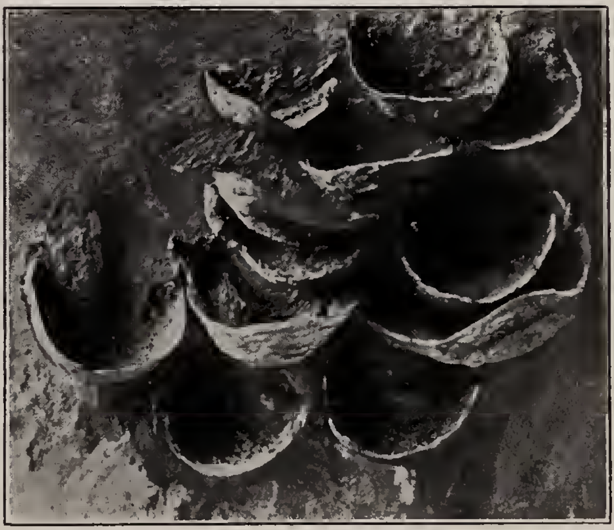
BIRCH BEER, a summer beverage made from the fermented sap of the Sweet, or Black, birch-tree (*Betula lenta*). The sap is secured by "tapping" in the spring, a large tree often giving from four to six quarts in a single day. Later—during the early summer—the layer of soft new wood immediately beneath the bark is itself pleasantly sweet and edible. One of the most remarkable instances of its value as an emergency food occurred in 1861 when it saved the lives of hundreds of Garnett's Confederates during their retreat over the mountains to Monterey, Va., after the battle of Carrick's Ford. For a good many years their course could be followed by the peeled trunks of sweet birches.

BIRCH SUGAR, the evaporated sap of the birch-tree, produced in much the same way as Maple-sugar (which see).

BIRDS' NEST SOUP, a famous Oriental soup in which the distinguishing ingredient is the edible nests of the *Collocalia* genus of swifts (formerly, but erroneously, included in the same classification as swallows), found chiefly among the islands of the Indian Ocean and along certain parts of the Chinese coast.

The nests consist essentially of mucus secreted by the birds' remarkably developed salivary glands. They suggest very small, very shallow cups in shape, and isinglass in composition. The resemblance to isinglass led to the now discarded theory that they were formed of semi-digested seaweed.

Most species of swifts glue their nests together with salivary secretions, but it is only the nests of the *Collocalia* which are chiefly (often exclusively) so constructed. When only partly thus made, the mucous portion serves both as a wall support or cup, in (or on) which a nest is built of other materials, and to cement those other materials (twigs, etc.).


Copyright, Henry Hill
The Birds' Nests of oriental cookery

Singapore is the chief market. The value depends upon color and purity—silvery whiteness, and absence of feathers and other foreign substances—shape and size. Newly built nests are whiter, and hence more valuable, than those obtained after the young are fledged. Fancy prices (up to $30 a pound) are paid by rich Chinamen for the choicest grade—new whole nests of perfect shape and color. A pound represents about fifty nests.

A cheaper product is obtained by boiling down the inferior nests and then straining off twigs and other foreign material, refining, and compressing into fragile, flaky layers. At the lower prices, fabrications of kanten (agar-agar) and isinglass are frequently substituted.

In the preparation of "bird's nest soup"—which is generally served at the *end* of a repast—the nests (from one to two for a guest, or the equivalent in the ordinary flake grade) are stewed into a gelatinous pulp before adding to the soup. They are believed by the Chinese to be very nutritious and to possess curative properties, but actually they have no higher merit than gelatin.

The nests—whole, flaked, and canned—are generally obtainable in the Chinese stores of large towns.

BISCUITS AND CRACKERS. In England all bakery "biscuits" and "crackers" are biscuits. In the United States the tendency is to accord the title "biscuit" (when speaking of bakery products) to sweet and fancy types; those unsweetened, or little sweetened, and particularly those thin, or small, and brittle being specifically styled "crackers." Biscuits and crackers are both made nowadays in great variety and, in the majority of cases, of uniform excellence of flavor and ingredients. The result of the improvement in the domestic product during the last few years has been a noteworthy increase in consumption. The American appetite for biscuits is, however, still a long way behind that of other countries such as Canada and England.

The title "biscuit" is a French word which signifies "twice cooked," the term having been originally applied to thin, flat bread for the use of travelers, sailors, and soldiers, baked a second time to increase its keeping quality by expelling practically all moisture.

Both retailer and consumer should see that biscuits and crackers are kept in a warm, dry place—dampness will quickly spoil them. If moisture has deprived them of crispness, they can often be improved by putting them in a hot oven for a few minutes.

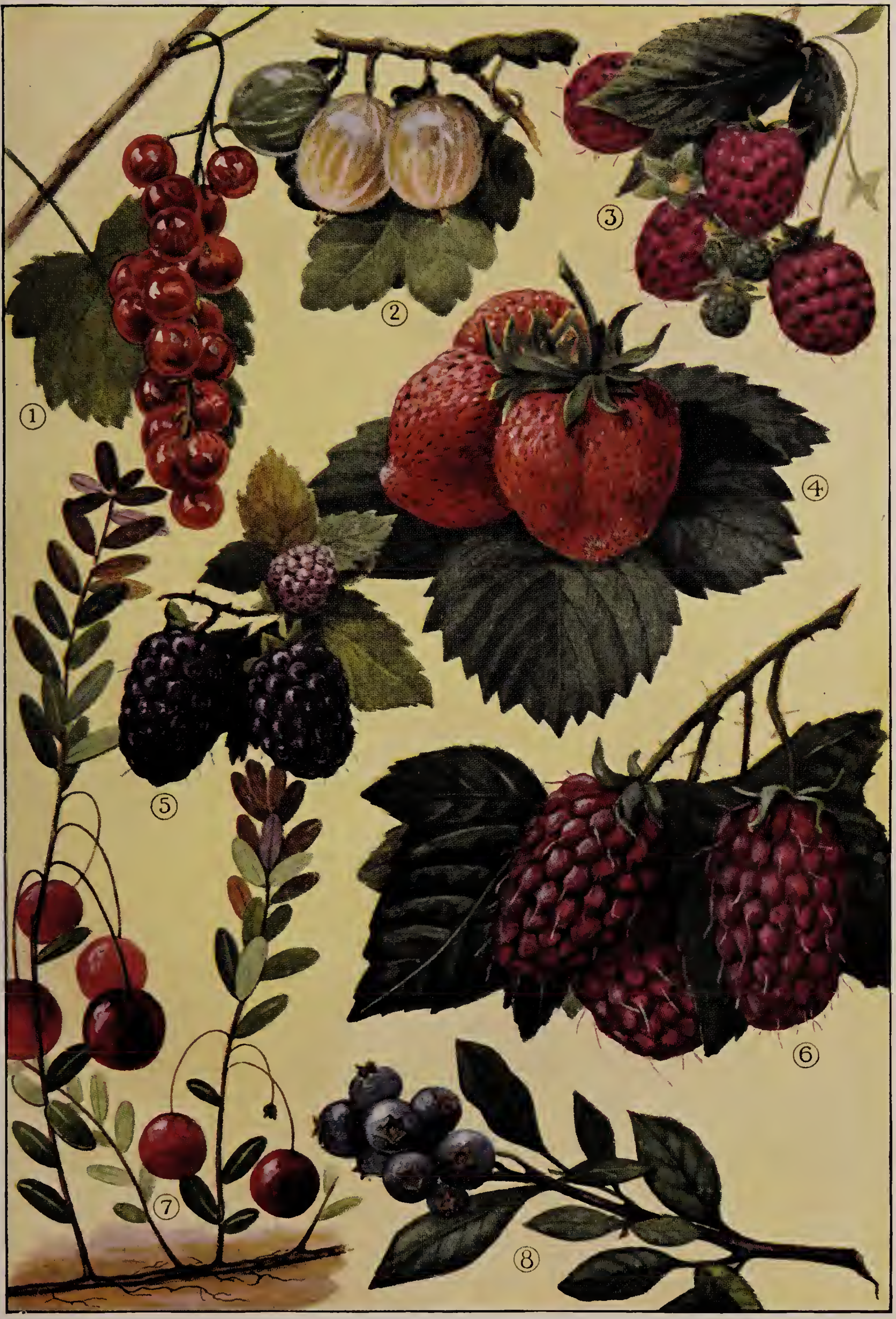
Package biscuits and crackers are always preferable to the bulk kind, for the latter can scarcely fail to suffer to some extent from exposure to atmospheric changes and to dust, flies, and other nuisances.

BISQUE, or Bisk. (1) "Cream" soup of shellfish—see the general article on Soups. (2) Ice cream containing crushed macaroons or similar additions.

BLACKBERRY (see the color-page of Berries opposite), the fruit of a bushy rambler, growing wild in woods and fields, which is sold in large quantities in the early summer months. Cultivation has greatly improved its size and quality in recent years and has extended its fruiting season to the end of September. In addition to its consumption as a fresh fruit, large quantities are used in cooking, and made into jelly and jam.

Dried blackberries, principally from the South, are wild berries dried in the sun. The quality is generally poor.

For the "Logan (red) blackberry" see Loganberry. See also the reference in Fruit Juices and the article on the Dewberry.



(1) Currants (2) Gooseberries (American) (3) Raspberries (4) Strawberries
(5) Blackberries (6) Loganberries (7) Cranberries (8) Blueberries

BLACKFISH, or Tautog, or Oyster-fish (*Tautoga onitis*), a North-Atlantic fish in season from April to October. It varies in weight from one to fourteen pounds, large specimens measuring as long as thirty inches—these big fish being though very scarce. Its skin is brown or greenish-black, with dark markings, tending to plain black in adults. The flesh is white, tender, and of fine flavor. (See the color-page of FISHES opposite 470.)

BLACKSTRAP. See references in the articles on SUGAR and MOLASSES.

BLANCHING, a term with two chief food meanings—(1) specifically, to whiten, or make white, with or without any culinary process; and (2) to scald or parboil, which frequently "whitens" but does not always have that effect. These two meanings have been carried over from identical French uses of the verb *blanchir.*

In agriculture, the stalks of celery (for example) are "blanched," or whitened, by banking earth or putting planks alongside or around them while growing, to keep the sun off. The process also makes them more tender and more delicate in flavor.

In cookery, mushrooms, artichoke bottoms, etc., are "blanched," or "whitened," by placing them in cold water containing a little lemon juice, butter, and salt, and bringing to a boil. Almonds are blanched by dipping in boiling water and then removing the skins.

For the *parboiling* significance, see in the article on COOKERY, and also references in CANNED GOODS.

BLANC-MANGE (from the French *blanc-manger,* "white eating"), a pudding or jelly made of gelatin (or "Irish moss," etc.) and milk. Cornstarch, ground rice, arrowroot, etc., are, however, frequently substituted. Transparent blanc-mange, the title then being a misnomer, is a clear, flavored jelly.

BLANQUETTE. (1) A variety of large pear. (2) In cookery, a stew with white sauce, especially when made of veal.

BLETTING, a term applied to the change which takes place in hard, sour apples and similar fruits after they have been stored for a considerable time. The first effects are to improve the fruit by making the flesh softer and sweeter, but continued too long the change results in decay. The word is applied particularly to fruits which are undesirable until decay has commenced—as medlars and many persimmons.

BLIMBLING. See BILIMBI.

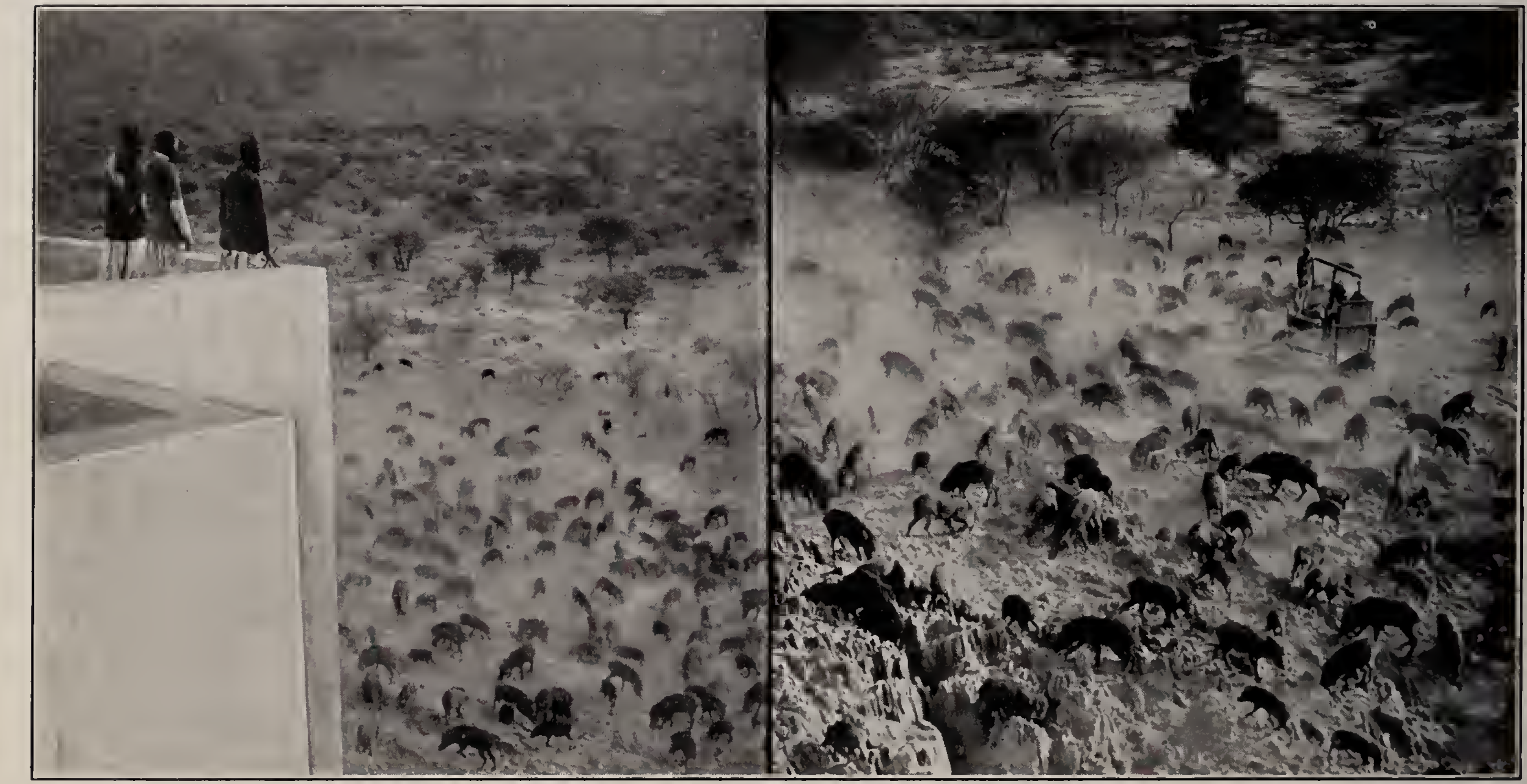
BLOATERS, selected fat herring, slightly salted and still more slightly smoked, retailed both from boxes and in cans, domestic and imported. As those in boxes are not intended for long keeping they should be consumed as soon as possible after curing. They are best from October to March. The name is also applied to similarly treated whitefish of the Great Lakes.

BLUEBERRY. See HUCKLEBERRY.

BLUEFISH (see the color-page of FISHES opposite 484), a fish found at different periods the length of the Atlantic coast and along the Gulf of Mexico, and hence in season all the year, Florida supplying the eastern markets during the winter. It takes its name from the blue of its upper skin and the slightly bluish tint of its sweet, delicate flesh. It varies in size from half a pound to ten pounds—being occasionally found as heavy as twenty pounds—and has the reputation of being the most voracious fish of the entire Atlantic seaboard. The very small fish caught during the summer months are known as "snappers," or "snapper blues."

BLUEGILL, or Blue Sunfish. See Sunfish.

"BOAR'S HEAD," a title which in culinary parlance was formerly applied only to the head of the wild boar but now includes the head of any pig, domestic or otherwise, when served whole. The European wild boar, which has a shorter body and longer tusks and snout than the domestic hog and bears a thick hairy coat, was in olden times abundant in England, and its head (considered a great delicacy) was served with imposing ceremonies. It has been extinct in England for several centuries but it is still hunted in continental Europe, northern Africa, and Asia Minor. The Indian wild boar is a taller animal, plentiful throughout northern India. Its chase on horseback, the riders armed with spears, is a popular sport. It is also one that calls for skill and courage as an infuriated wild boar is a desperate and dangerous fighter.



Watching wild boars that have come out of the jungle in the evening to get the food spread over the ground for them, Udaipur, India

BOB-O-LINK. See Reedbird.

BOB-WHITE (*Colinus virginianus*), **or Colin,** a native American game-bird inaccurately styled "quail" in the North and West, and "partridge" in the South. Its upper plumage is reddish-brown, flecked with black and white. Its under-parts are white or buff with black markings. The average market weight is about five pounds to the dozen, but some specimens are considerably larger.

The California, or Tufted, or Valley, "quail," or "partridge," is smaller than the bob-white and of a general blue-grey color.

Other similar birds are the Mountain "quail," or "partridge," of California, and the Massena "quail," or "partridge," of the southwestern states and Mexico.

The true Quail (which see) is a European bird, also smaller than, and generally inferior to, the bob-white.

BOMBAY-DUCK, a familiar name for the bummalo, a small fish, about the size of a smelt, caught in great quantities off the Indian coast, and dried and canned as a relish.

BONITO, a fish varying in weight from five to twelve pounds, found along the Atlantic coast, generally following the mackerel, which it resembles in scale coloring. It is in season from June to October. Its meat is rather dark and not especially desirable. The Pacific, or "California," bonito, or "skipjack," a second species of the genus, averages heavier. Its flesh is reddish, somewhat coarse, and of gamy flavor. In Japan its steaks are steamed, sun-dried, and smoked to the appearance and hardness of wood.

Bonito

BORAGE, a garden herb largely cultivated in England but little grown here. The young leaves smell somewhat like cucumbers and are used for salads and cooked as greens. One or two leaves or flower spikes may be used to top a summer beverage.

BORECOLE, a variety of cabbage with open leaves instead of head. It is best known as Kale (which see).

BOUILLON CUBES, or Capsules, consist of meat and vegetable extracts and seasoning—the latter including a large percentage of salt. They are entirely negligible from a directly nutritive standpoint but they are useful as a flavoring medium for gravies, sauces, etc., and as a ready means of quickly preparing an appetizing hot (and therefore stimulating) beverage.

BOUQUET of HERBS, a small bundle, or "faggot," of various pot-herbs, etc., as parsley, thyme, celery, and bay-leaf, for flavoring soups and stews.

BOWFIN (*Amia calva*), a small, voracious, dark-colored freshwater fish found in the Great Lakes region, the Mississippi valley, and the eastern states from New York to Florida. It is locally known as grindle, dog-fish, mud-fish, lake lawyer, marshfish, blackfish, choupique, cypress trout, and willow pike. It prefers the weedy marshes, seeking the boggy places at night and going back to deeper waters by day. In some parts it is best known by those who fish at night with lantern and spear. As it chooses the shallow places for nesting, one may often wade out in the marshes and catch the fish by hand. The soft, pasty flesh of the fresh bowfin is not generally liked, but salted and smoked it is a real delicacy.

BRAINS. All kinds of animal brains are esteemed as delicacies, but beef, calves', sheep's, and pork—the second being the choicest—are the kinds chiefly retailed. In southern cookery, the preference is generally given to sheep's and lambs' brains. They should be bright in color and firm.

BRAN, the ground husk, or outer coat, of wheat or other grain (see WHEAT) obtained in the process of flour-making. Its principal use is as food for live stock. It is also mixed with white flour to make "brown," or imitation "Graham," bread, and is widely employed as a laxative, being for that purpose eaten mixed in cereals, or plain, or in muffins, and generally with consistent advantage. In cases of restricted diet, or limited capacity to consume or assimilate food, it should be borne in mind that the increased peristaltic action produced by the bran diminishes to some extent the absorption of other food as it passes through the alimentary tract.

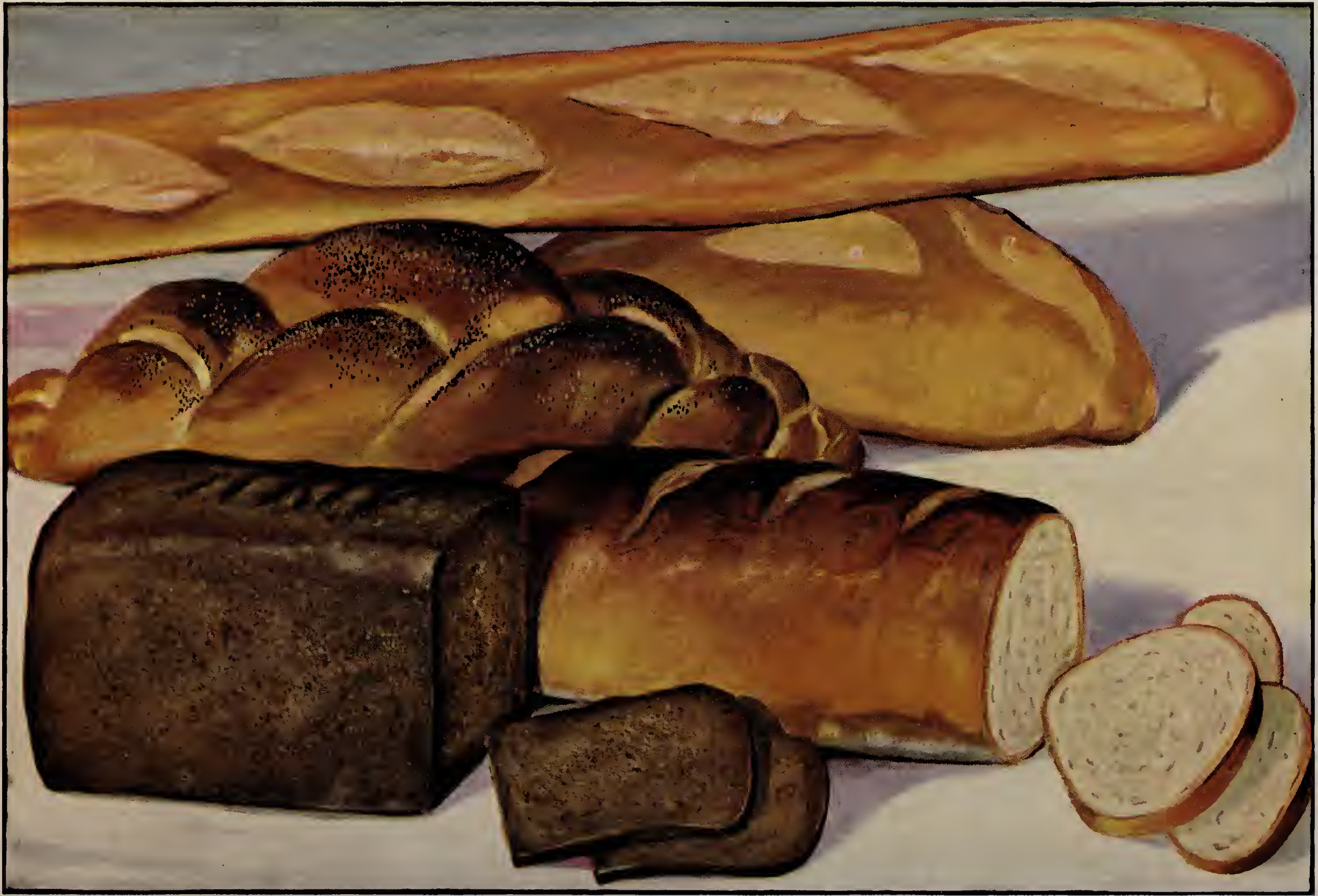
BRAWN, veal or pork trimmings, chiefly the latter, seasoned, spiced, and pressed. It is sold in bulk, canned, and sausage form.

BRAZILIAN CHERRY. See SURINAM CHERRY.

BRAZIL-NUT, or Cream-Nut, or Para-Nut, the fruit of a gigantic South-American tree, averaging 130 or more feet in height, heavily trunked, and with its lowest branches a hundred feet or so above the ground. It flourishes in great numbers in the Amazon valleys. The nuts are brown, wrinkled, and triangular, with hard shells and white kernels of very agreeable flavor. They grow encased and packed in round seed-vessels (see illustration in the color-page of NUTS opposite 346), varying in size from that of a coconut to some as large as a man's head and so hard that a sledge-hammer is required to break them.

Brown Bros.

Loading flatboats with Brazil nuts



BREAD

BREAD, of the general character that we know—a leavened loaf of the flour of a grain—was probably first made by the Egyptians, though some historians give the credit to the Chinese. From Egypt the custom traveled to Greece and, later on, the Greeks communicated the process to the Romans, who spread the invention through the northern countries during their campaigns.

The classical allusions to bread are very numerous. Athenaeus mentions no fewer than sixty-two varieties as known among the ancient Greeks, and gives good descriptions of many kinds. The Greeks employed a great variety of grains—wheat, barley, rye, millet, spelt, and rice—combining them sometimes with other substances such as the flour of dried lotus roots and the (boiled) root of the cornflag, the last-named to give a sweet flavor.

In ancient Rome, public bakeries were numerous, the great majority of them conducted by Greeks, who had the reputation of making the best bread.

Wheat bread is the most popular in this country because wheat-flour's higher percentage of gliadin makes bread that is lighter than that of other flour—its whiter color and mild flavor also helping to win it preference. It is, further, a food of high merit—though not the complete food that may be suggested by its description as the "staff of life." It lacks fat and is deficient in protein—hence the custom, and necessity, of supplementing it with other articles such as butter, milk, meat, and fish (see also the article on Food Values).

The exact science of modern bread-making is a study of infinite minor chemical possibilities but its fundamental principles may be outlined in a few words. The flour is mixed with water and a little salt and yeast—also, usually, a small proportion of lard or other edible fat or oil, and sugar (cane or corn, or both)—and left or set in a warm place to "rise." The "rising," or fermenting, generally covers about five hours, and during that period the dough is kneaded, or "punched," three or four times. Then comes the dividing of the dough; next, a short rest to permit the loaves to recover from the compression of the dividing machine; then the shaping of the loaves, a final period of rising in a steam-room, and, lastly, the baking. The total time consumed varies in different processes, according to the quantity of yeast used, the temperature maintained, etc. In large modern bakeries, all, or nearly all, the work is done by machinery.

The raising of the dough is effected by the growth in it of the yeast fungi. The diastase in the dough, produced by the action of the yeast on part of the soluble protein of the flour, converts some of the starch into sugars, and then the yeast cells, feeding on and propagating in this, produce alcoholic fermentation—convert it into alcohol and carbon dioxide (gas). The alcohol, which passes away by evaporation, is unimportant, but the carbon dioxide, being distributed all through the dough, raises it as it expands in thousands of little pockets. When the loaves are placed in the oven, the heat kills the yeast cells and stops the fermentation, but at the same time causes the gas already formed to expand still further, thus again raising the bread. Later, the gas forces itself out, but the little pockets remain, held in place by the stiffening of the gliadin in the dough. The heat also changes some of the moisture into steam, which, being retained in the same or other tiny pockets, aids in the raising process—and the result is the light, porous loaf of everyday use.

Bread sponge should be prepared for the oven as soon as the yeast has performed its mission—otherwise bacterial fermentation sets in and acidity results. Too cold a dough causes too slow fermentation.

The brown crust of the baked loaf and much of its pleasing odor are due principally to the caramelizing of the starch-converted sugars of the outer surface.

The ordinary bread and rolls of everyday use are made from white flour—obtained by grinding the wheat grain after the bran coat and germ have been removed. For the more "fancy" varieties, milk and water, or milk alone, are substituted for water in mixing the dough. Recently, dried buttermilk has taken its place as a desirable ingredient. It improves the flavor of bread and gives the desired brown crust at a lower temperature, thus permitting the retention of a higher degree of moisture. In some parts of France, only sea-water is employed in the making of bread dough. The bread thus made is considered especially wholesome because of its mineral content and it retains its moisture longer than the ordinary kind.

New hot bread is generally rated as a bugbear to any except those of abnormally strong digestive powers—but lovers of good things to eat, who in fear of their lives have refrained from enjoying it, should take a stale loaf, wrap a wet towel around it, and set it in a brisk oven for a while. The result will be a hot loaf that tastes *better* than one fresh from the baker—yet won't worry the digestion at all!

For French bread, just dip the loaf in water and set it in the oven without any cloth around it.

Bread should be kept in an air-tight box or other receptacle which must be frequently scalded and aired—and thoroughly dried before using again.

International

Bread retailed from street counters, Reval, Esthonia. Note the size of the loaves

In other countries, under various circumstances, bread, both leavened and unleavened, has been made from a great diversity of grains, vegetables, and nuts. Beans, peas, potatoes, etc., produce fair bread if mixed with wheat or rye to prevent sogginess; rice makes bread of pleasing flavor and attractive appearance; the chestnut bread of the Corsican mountaineers is agreeable and healthful and will keep fresh for as long as two weeks; and acorns, mosses, and innumerable roots have also served —either alone or mixed with cereals.

Aerated Bread, very popular in London, is made by charging the water with carbon dioxide (gas), then working the dough up in enclosed kneading machines and putting directly into the oven, instead of allowing the gas to form in the dough from the fermentation caused by the working of yeast. The advantage is that bread can be thus made more quickly and cheaply, and chemically purer—but, to the American palate, aerated bread has a rather flat taste.

Boston Brown Bread is made from rye-flour, cornmeal, and Graham flour, well sweetened, principally with molasses, cooked by steaming, boiling, or baking, and generally served smoking hot. It originated in New England and is still very popular there. Within recent years it has attained also a considerable sale in other parts of the country, with a growing use in canned form. It is very nutritious but not as easily digested as wheat bread.

Corn Bread. See under its own title.

French Bread, as generally known in this country, is a long, narrow loaf—often eighteen or more inches in length—of crisp crust and proportionately little crumb. In France, there are two distinct types. One is the kind already mentioned—in Paris sometimes reaching three to five feet—known as *pain ordinaire* (ordinary bread). The other is *pain riche* (rich bread)—a finer variety mixed with milk and made in all sorts of shapes (crescents, etc.), generally of small size.

Gluten Bread is made from ordinary flour dough subjected to straining and pressing under a stream of water until most of the starch is worked out, leaving the gluten as the principal component. Properly made, the result is a light, elastic loaf especially suitable for diabetic and other patients from whose diet starch (and its product, sugar) should be excluded.

Graham, or "Brown," or Whole Wheat, or Entire Wheat, Bread. True Graham, or whole wheat, or entire wheat bread (these titles, correctly employed, are synonymous) is made from flour or meal which contains all of the wheat grain (see WHEAT and FLOUR). The flour or meal should at all events include the aleurone layer. In everyday practice however the composition of breads of this class varies greatly—some being merely products of poor-grade white flours with bran added. The modern process closely follows that for "white" bread, but the original Graham bread was made without the addition of yeast, or without giving opportunity for the action of wild yeast, the few holes being due to some minor fermentation. It was sweet and fairly palatable but a good deal heavier than yeast bread.

The comparative advantages of white and Graham bread have been in dispute a long time. Much writing has been done to prove that, by discarding the bran-coats in the production of white flour, modern milling robs it of an appreciable proportion of nutritive value, but it has been found that foods made of flour which includes the bran-coats are, generally speaking, not as fully assimilated, and the apparent protein gain is therefore to a considerable extent, or completely, lost. The choice of one or the other—of ordinary or Graham bread—thus resolves itself, under ordinary dietetic conditions, into a matter of individual taste and digestion. An additional viewpoint to be considered is that as the protein of wheat is not by itself adequate for growth (it must be supplemented by that of milk, or meat, etc.) one may better feed the bran layers to the cattle which yield us the milk and meat proteins. When the addition of bran to the human diet seems desirable, it is preferably made separately, thus rendering possible the consumption of a known and easily controlled and measurable quantity (see also the article on BRAN).

The respect in which true Graham flour does appreciably score is in its retention of a greater proportion, or all, of the wheat minerals and vitamins (the A and B groups)—see FOOD VALUES. This is, of course, an important matter in diets deficient in mineral and vitamin-bearing foods.

The title "Graham" is from a Sylvester Graham who strongly agitated for recognition of the nutritive value of whole, unbolted wheat-flour.

"Honey Bread" is ordinary white bread with a higher percentage of sweetening.

Knackebrod is a whole-rye-meal "hard tack"—large, thin, and round—popular in Scandinavian countries.

Leavened Bread is bread of any kind, raised or "leavened" by yeast or any similar agent.

Macaroni Bread is so called because it is made from the flour of the hard wheat known as "durum," or "macaroni"—the latter title noting the use of its semolina in the manufacture of macaroni, etc. It contains a higher percentage of gluten than bread made of ordinary straight or blended white flour.

Malt Bread is that in which malt extract is added in making, the result being a bread that is sweeter (from the sugars formed by the action of the diastase of the malt) and moister (because of the dextrin formed). There is also an increase of phosphates.

Pumpernickel is the "black bread" of the German and Russian peasant. The true type, made of coarse unbolted rye, is very heavy, of a peculiar aromatic flavor, and slightly acid. Thinly sliced, it is considered a delicacy when made into sandwiches or eaten with the soup course. It is sold generally by delicatessen dealers—made here and also imported, the latter being canned in slices. Domestic "pumpernickel" is baked in many styles—from some which are nearly as heavy as the original Westphalian to others that are not much darker than ordinary "rye bread."

Rye Bread, as sold in this country, is commonly part rye-flour (generally bolted, but sometimes whole rye) and part wheat-flour, with or without caraway seeds or flavor.

Salt-rising Bread is bread leavened by the addition to the sponge of a fermented batter of warm milk, salt, and (generally) cornmeal. The name is derived from the salt dissolved in the milk to prevent the growth of bacteria in it while it is exposed to the atmosphere awaiting the action of (usually) "wild" yeast (see YEAST).

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Gathering bread-fruit, Panama

Unleavened Bread is made without yeast or any other raising agent. Some "dyspeptic breads" are of this character but the most widely marketed example is the Matzoth (which see).

Vienna Bread is an American title for loaves made of the kind of dough used in France for the *pain riche* mentioned in the paragraph on French bread. It is seldom if ever baked in Vienna in loaves of the style seen here!

A color-page of Breads faces page 47.

BREAD-FRUIT (*Artocarpus incisa*), the sweet, starchy fruit of a tropical tree, illustrated on the preceding page. It is usually round (sometimes inclined to oval), seedless in the best types, nearly or quite as large as a man's head, and covered with a thick, greenish rind.

The natives generally gather it when the starch is in a mealy condition—the fully ripened fruit is undesirable in flavor—then peel it, wrap it in leaves, and bake it by placing between hot stones. The flavor and texture suggest the sweet-potato. An especially pleasing dish is this baked bread-fruit with milk of fresh-grated coconut squeezed over it. Less frequently, it is sliced for drying in the sun and then ground into flour. It is also preserved—sometimes for years—as a reserve food supply by allowing it to putrefy in watertight pits, the result being a mass resembling soft cheese, which, when used, is commonly baked in the same manner as the fresh fruit. The "poipoi" of the Marquesas Islands is this ancient bread-fruit pounded and ground in a wooden bowl and permitted to ferment and swell like raised dough—its peculiar odor and bitter flavor are highly enjoyed by the natives but they are liable to discourage a novitiate!

For northern tables, bread-fruit is best prepared by scooping a hole in the top, filling with butter, and baking. Another method is to boil the entire fruit until tender, then peel, slice, and serve with butter sauce.

BREAD-NUT, the roundish, yellow or brown seed of the fruit of a large tree of tropical America, especially the Jamaican Bread-nut. It has the flavor of a hazelnut and is locally eaten, roasted or boiled, in the place of bread.

BRINE, as used for preserving meats, butter, vegetables, etc., is water saturated or heavily charged with salt.

When employed for meat, saltpeter is generally added to retain or enhance the desired red color. A small quantity of sugar or molasses is also sometimes included.

For household purposes, and in small establishments, brine is best kept in kegs made of oak or other hard timber. Meat should not be left in it longer than two months without boiling and skimming the brine, as the latter is liable to acquire poisonous qualities.

BRIOCHE, a slightly sweetened rich bread or very plain cake. "Fancy" brioches have a center filling of cherries, pineapple, etc., or jam, or Parmesan cheese. Colloquially, the title has been extended to any sweet bun with sirup poured over it.

BRISKET, the breast of an animal, particularly the part covering the breast-bone. In beef and mutton it is one of the choice cuts for boiling and stews.

BRUSSELS SPROUTS

BROCCOLI, a variety of cabbage produced by cultivation. It is the original form of the Cauliflower (which see). It is very similar to cauliflower, except that the heads average smaller and coarser and take longer to form their "curd" of succulent incipient flower-buds.

BROSE, a kind of quickly prepared porridge made by stirring boiling water, milk, or broth into raw oatmeal or barley or other meal until it has the consistence of "hasty pudding." It is named according to the liquid used—as "water brose" and "beef brose."

Oatmeal and other cereals require long cooking to be readily digestible, so brose should not be recommended for invalids or young children.

BROTH, a liquid, or clear soup, obtained by boiling or steeping meat, poultry, game, or shellfish in water (generally with the addition of vegetables or herbs) and then straining. If, as it always should be for this purpose, the meat is set in the water while it is cold, and if, further, the entire process is conducted at a low temperature, the broth may contain a fair percentage of total nutriment, but as generally made (by bringing to a boil and then simmering) it is principally valuable for the pleasure it gives the palate, and, when taken hot, as a stimulant. Clarified broth is also known as bouillon and consomme (see Soups). For further consideration of the food value of broths and similar preparations, see the article on Beef Extract.

Broths may be agreeably diversified by using a variety of distinctive vegetable and other flavoring ingredients—as celery broth and tomato broth—and are so retailed in bottles and cans.

BRUSSELS SPROUTS (see color-page opposite), one of the many special varieties of cabbage, cultivated in Belgium since early in the thirteenth century and now grown in every temperate climate. It is distinguished by its long stalk on which develop a number of miniature cabbages, each an inch or so in diameter. These, in the best varieties, are, when raw, nearly as firm and hard as the stalk itself, but when cooked are as tender as fine cauliflower and possess a very delicate flavor. The chief season is from September to January. The outer leaves should be peeled off before cooking, and boiling should be continued only long enough to make the "sprouts" tender—their good qualities are lost and they become watery if overcooked.

BUCKWHEAT (see color-page of Grains facing 434), the large fruit, or grain, of an annual herb native to Siberia. Its name is from the German *Buchweizen,* "beech-wheat"—its shape resembling that of the beechnut. It is known in France as *Blé Sarrasin* because report says that it was brought to Europe by the Crusaders. The

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Buckwheat in blossom on a Pennsylvania farm plant, hardy and very rapid in growth, is raised in this country chiefly in Pennsylvania and New York.

Buckwheat-flour is very popular for batter cakes, especially in cold weather. Unmixed, it is dark and of a rather rank, bitter flavor but this is generally modified by mixing with wheat "middlings"—the combination making dough that is lighter and sweeter, and cakes which brown more rapidly on the griddle.

In buying buckwheat-flour, small, frequent purchases are best. It should be kept cool and well covered as it is much sought by insects.

Bees are very partial to the blossom of the buckwheat (see HONEY).

BUFFALO-BERRY, a fruit resembling the barberry, but generally round, popular in the Central West, where it is made into excellent jelly and is also dried for winter consumption. Its name originated in the old-time custom of serving the cooked berries as a sauce with buffalo meat.

Buffalo-berries

BUFFALO-FISH. There are three chief species of buffalo-fish (*Ictiobus*)—the Common (or "big-mouthed," or—in Louisiana—the "gourdhead"), the Black (or "mongrel"), and the Small-mouthed (or "white"). Their flesh is wholesome and nutritious but is generally coarse, especially that of the big fish. The Common is the largest, frequently reaching a weight of fifty pounds and a length of three feet or thereabouts. The Black—the type most freely caught and the most widely known—averages the smallest, good specimens weighing, though, up to thirty-five pounds.

BULLHEAD. See CATFISH.

BUMMALO-FISH. See under the colloquial title of BOMBAY-DUCK.

BUN, a well-known class of small, light, sweet (generally round) cakes. In Scotland, however, "bun" signifies a rich fruit-cake, and in Ireland means nothing more than a round loaf of plain bread. See also BATH BUN, CROSS BUNS, etc.

BURBOT (*Lota lota*), a fresh-water fish found in the lakes and larger streams of the northern parts of both hemispheres. It is long and slender, and beautifully marbled in green, black, and yellow. The flesh resembles that of the cod and is prepared for the table in similar manners. The liver is considered an especially choice dish.

BURDOCK, or Gobo, a weed in this country but much cultivated in Japan, where it has been developed into an excellent root-vegetable. The roots are dug when from two to three months old, before they have begun to branch or become woody.

BURGOO, a thick, strongly seasoned soup of beef, chicken, ham, and vegetables, originally served at barbecues. "Kentucky burgoo" is the most famous.

BURNET (*Sanguisorba minor*), a perennial garden-herb, whose young leaves are used for flavoring soups and in salads. They suggest the cucumber in flavor.

BUTTER. The use of butter—the fat of the milk of warm-blooded quadrupeds—dates back to the tribal history of mankind. A primitive churn was one of the earliest of community and household devices.

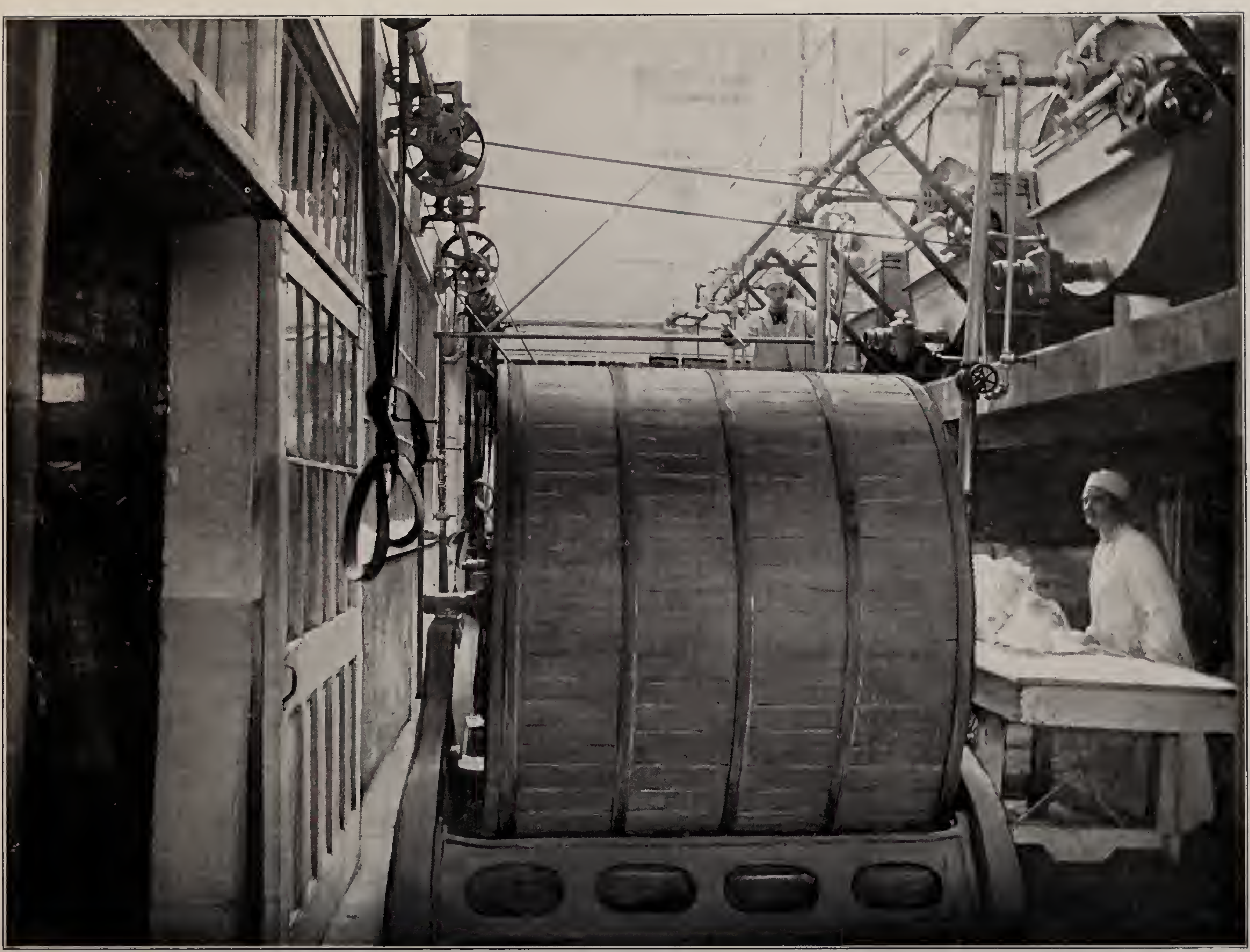
Butter can be, and is, made also from the milk of sheep, goats, buffaloes, and other animals, but the product we know and consume is always of the milk of the cow. The bulk of our supply is made in creameries, and the result of this comparatively recent centralization has been to greatly improve the average quality and to establish uniformity in grading.

By the old-fashioned method, cream for butter making is obtained by allowing the milk to stand from twenty to thirty-six hours, the cream which has risen to the top being then removed and placed in earthen crocks, there to be held until sufficiently "ripened," or soured, by the action of its lactic acid bacteria. This process produces excellent butter when conditions are favorable, but if the atmosphere happens to be infected with the wrong kind of bacteria during the ripening of the cream, the product may lack uniformity and be poor in flavor and keeping quality.

By the creamery method, the cream is generally separated from the whole milk while it is still sweet by running it through centrifugal separators. It is then (usually) pasteurized and is next treated by the addition of a lactic acid "starter" which consists of pasteurized skim-milk previously curdled by the addition of "pure cultures" of lactic acid bacteria.

Next, by either process, comes churning, which brings the fat globules into contact with each other—and these uniting become granules of butter. The granules are drained of the remaining liquid of the cream—the "buttermilk"—then washed, brined or salted, and "worked" into the finished, homogeneous product.

Lactic acid fermentation—either by wild bacteria or by special cultures—is essential by general American standards. Butter made of sweet cream, though popular in Europe, is not "butter" to most of us—it is better described as milk-fat. A fairly steady demand (especially in the larger cities) nevertheless calls for it and enjoys it—unsalted, and generally uncolored—under the title of "sweet butter," or "cream-



Brown Bros.

A modern churn

ery unsalted.'' (See also reference to its use in *Reconstituted milk* in the article on MILK.)

The great majority of the butters of commerce show a water content between 12% and 16%. United States ''standard'' contains not less than 80% of milk-fat.

Denmark has for many years held the reputation of producing the finest butter in the world. It can be found all around the globe in shops where luxuries are sold. Its excellence is due to the efficiency of the government system for controlling the output. Almost equally good results are obtained by the regulations of the Cork Market, Ireland, and by government control in New Zealand. Improvements in creamery methods and conditions promise to give equal reputation to the United States product.

More than ordinary care is required if a merchant wishes to establish and maintain a reputation for selling good butter. Not one consumer in a thousand can judge the value of coffee, for example, with any degree of accuracy, but a big percentage have keen noses and palates wherewith to discriminate in the matter of butter.

A retailer should know how to test both by taste and smell. Many merchants depend on only one or the other of these senses and as a result they often find themselves at fault. This is particularly true of the dealer who buys by taste and is addicted to the use of tobacco or liquor. At times, his sense of taste may be keen enough to discriminate in a remarkable manner, but if he has recently been smoking he will find that it cannot be depended upon. Hence it is wisdom to cultivate both taste and smell to a point where, if one fails, the other can be relied upon. The expert buyer generally tests first by smell, breathing it well back into the nose, then by taste, and finally by allowing a little to melt in the mouth and letting the flavor expand up through the nostrils—this last test to determine its keeping qualities.

Butter to be especially avoided is that which is ''lardy,'' ''oily,'' or ''woody'' in flavor. It should neither be oily nor ''dry'' in appearance, nor flecked, cloudy, or streaked. There should be no holes or crevices in it—as these enclose moist air and favor fermentation. When broken, it should show a rough fracture—if it breaks smooth, it is deficient in ''grain''—which in a majority of cases stands for richness of quality. When pressed, the moisture which exudes should be clear—if it is milky, it will not keep well. The highest prices are paid for butter that is hand-worked, unsalted, and very dry—under 11% moisture.

''Renovated,'' or ''process,'' butter is produced by manipulation of low-grade or slightly deteriorated lots—first melting and settling, then skimming off froth and scum and discarding also the curd and brine settled, freshening by strong currents of air, mixing-in fresh milk inoculated with bacterial cultures, churning, rapid cooling, draining, salting, working (to remove the excess of milk), and packing or making into prints. In the hands of a reliable manufacturer, who refrains from using improper materials, processing is a distinct advantage to the food supply and the result is very similar to real butter. As, however, there are differences in the protein and vitamin components it should never be sold or represented as fresh.

An easy test to distinguish between fresh and process butter, and also oleomargarin, is to boil a small amount, stirring thoroughly two or three times. Process and oleomargarin (whether the beef-fat or the nut-butter type) will boil noisily, sputtering more or less—like a mixture of grease and water—but will produce little or no foam. Genuine butter boils with less noise and produces an abundance of foam.

"Packing-stock" butter, by the definition of the New York Mercantile Exchange, is original farm-butter in rolls, lumps, or otherwise, without additional moisture or salt. "Ladles" is butter collected in rolls, lumps, or whole packages and reworked by the dealer or shipper. "Grease butter" includes the lowest grades of all classes.

The natural color of butter throughout the greater part of the year varies from almost white to a delicate light yellow or cream—it is only when the cows are enjoying new spring pasture that it is yellow. The average consumer, however, expects it to show a good bright yellow all the year round — and in consequence nearly all butter (except the sweet butter referred to on page 55) is brought up to that appearance by the use of coloring additions—chiefly of vegetable origin, as annatto and carrot juice.

Equally important with proper selection, is the care of butter after it reaches the store. A separate refrigerator should be reserved for it as it readily absorbs the odors of other articles, thereby losing its own delicate flavor and often acquiring a most disagreeable smell and "twang." Meats, cheese, and some fruits, as cantaloupes and pineapples, are especially detrimental. The refrigerator must be kept thoroughly clean, as otherwise it will itself spoil the flavor—and pine-wood in all forms should be kept away.

If butter is ladled, all the implements used should be scalded at least once a day, and kept in fresh-made brine.

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Packing butter for shipment, Amsterdam, Holland

Rancidity is caused by the formation of butyric acid. A fair measure of freshness can be recovered (if newly rancid) by thoroughly washing with fresh milk, which readily absorbs butyric acid, and then with fresh water to remove the milk.

All this attention on the part of the retailer is, however, often upset by the consumer's lack of care after purchasing. Precautions should be taken by the housewife also

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Bedouin women of Mesopotamia churning butter by shaking milk in goatskin bags to keep butter free from contaminating influences. Very few households can accord it a separate refrigerator compartment, but every one can have a covered china or earthenware vessel in which to keep it—then, if the refrigerator is kept scoured and dry, and the vessel clean, scalded before use, and always covered, there is a reasonable chance of the butter retaining its purity unless the other articles in the refrigerator have very strong odors.

If no jar is available, the best plan is to wrap the butter in waxed paper.

A good refrigerator and a plentiful supply of ice are, of course, desirable, but butter will stay fresh and pure for a reasonable time without either if kept in a dry, clean, covered vessel set in a cool place—and preferably kept wrapped in waxed paper inside the vessel. A damp or "musty" room—or its vicinity—should be carefully avoided—"mustiness" has as close an affinity for butter as any other odor.

The perfumed butter used in Paris is made by taking pats of sweet butter and placing them between upper and lower layers of flowers, sheets of muslin protecting the surfaces of the pats.

See also NUT-BUTTER and OLEOMARGARIN.

BUTTERFISH (see the color-page of FISHES opposite 294), a fish varying in weight from four to the pound up to three-quarters and one pound each, found along the Atlantic coasts, chiefly to the north and middle, being most plentiful during the summer and fall. In appearance it suggests the pompano. It is also known as dollarfish, harvest fish, and pumpkin-seed.

Other much esteemed butterfishes, rich and delicate in flesh, are the little *Peprilus paru,* also known as "harvest fish" and "whiting," chiefly of southern waters, and *Palometa simillima,* the "California pompano," abundant off Central California during the summer months. The latter attains a length of ten inches.

BUTTERINE. See the article on OLEOMARGARIN.

BUTTERMILK. Buttermilk is, strictly speaking, the liquid which remains after the separation of butter from soured cream, but much of that consumed to-day is "ripened" skim or whole milk, chiefly the former—the milk being soured by the addition of cultures of lactic acid bacteria after centrifugal separation of the cream and then churned to break up the curd. When produced under sanitary conditions and drunk fresh, it is both nutritious and, to many palates, an exceedingly agreeable beverage. In Scotland and Ireland it is consumed in enormous quantities as an accompaniment to porridge and potatoes, and its use, principally as a beverage, has in the last few years been greatly extended in this country. True buttermilk is similar to skim-milk in chemical components but ranks higher in nutriment value and is more easily disposed of by the average stomach because of the division of the casein by both the souring and churning. A pint of average richness contains about as much nourishment as 2½ ounces of beef. As a cheap source of easily digested protein—which comprises nearly half of its percentage of food value—it is deserving of still more general use. Like fresh milk, it is an especially valuable addition to the dietary when there is a deficiency of other nitrogenous food and therefore combines well with a farinaceous diet, supplying the protein lacking in potatoes and cereals (see FOOD VALUES).

Though buttermilk (except of course the "ripened milk" kind made from whole milk) contains as a rule very little milk-fat, it is seldom entirely free from it, and it frequently happens that where milk is abundant and rich a considerable quantity of fat is allowed to remain in the buttermilk in the form of butter. This increases its food value, but a careful skimming may be necessary if the milk is intended for special dietaries.

Buttermilk is best kept in glass or china vessels as its lactic acid is liable to affect other receptacles.

In addition to its service plain, it is excellent as "buttermilk lemonade"—lemon and sugar being added as for ordinary lemonade; as "lacto," or sherbet—sugar, eggs, and fruit juices added before freezing; and as "buttermilk cheese," made in the same manner as cottage cheese.

Powdered buttermilk is used by bakers in bread and cake baking.

BUTTERNUT (see the second color-page of NUTS facing 346), the nut of the "White," or "Long," walnut of the Northeast, ripening in September. It is typically oblong and with an irregularly ridged, rough shell—which is exceedingly tough but which encloses meat that is rich, oily, and agreeable in flavor. When young and tender, the whole fruit makes a delicious pickle and catchup. See also the WALNUT article. For the tropical butternut, see SOUARI.

CABBAGE, the vegetable which probably comes next to the potato in the quantity consumed. It is found in more than seventy varieties, of which several are of sufficiently distinct form, both in appearance and quality, to be known under special titles as BROCCOLI, BRUSSELS SPROUTS, CAULIFLOWER, KALE, KOHLRABI, and SAVOY CABBAGE (which see under their respective heads).

Only cabbages that are young, crisp, and of bright color can be considered desirable. Thus properly selected, and cooked until just tender, they are valuable as giving bulk to the diet and for their minerals and vitamins (see FOOD VALUES). The over-cooking of cabbage spoils its appearance by darkening it, and renders it more difficult of assimilation. Mature cabbage also is difficult to digest and tends to produce flatulence.

If to be kept for any considerable length of time, cabbages require a temperature near freezing—the average cellar is too warm to answer the purpose. Adequately dirt-covered or straw-covered pits or trenches will serve. If stored in barrels, they are best placed with the roots uppermost.

The unconsumed portion of boiled cabbage is not generally desirable for later service if simply warmed over, but it can be used to advantage as a wrapper in which to fry or bake small portions of finely chopped meat of any kind.

Red cabbage is a favorite for pickling.

See also references in the general article on VEGETABLES and the special articles on SAUERKRAUT and SLAW.

CABBAGE-PALM. Two palms hold this title. One is the tropical *Oreodoxa oleracea,* cultivated in southern Florida, which attains at maturity a height of a hundred feet or more, with leaves 10 to 14 feet in length. It is cut down when about three years old for its tender central leaves, which are eaten as greens, and also (and particularly) for the terminal bud and the tender pith of its thick stem, which are enjoyed both plain-boiled and pickled. The other palm is the sub-tropical and tropical *Sabal palmetto*—its wood valued as dock-timber and its leaves for hat-making—but of no particular merit as a food-plant.

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A fine field of cabbages

CACTUS, an order of curious, usually prickly, generally leafless plants, with fleshy stems or bodies—a number of them bushy, some resembling telegraph poles in general appearance and conformation, others of round or oval shape suggesting huge spiny melons. Many are capable of extensive growth in regions so extremely arid as to be otherwise unproductive. A majority of the most important edible-fruit varieties are included in the *Opuntia* genus, the fruits being best known in this country under the title of Prickly Pear (which see). Among other interesting examples are the Barbados Gooseberry, Mexican Strawberry, Saguaro, and Strawberry-Pear, and the fruit of the Melon-Thistle, all of which are described in their alphabetical positions.

CAFFEIN, or Thein, the stimulating principle of coffee, tea, maté, guarana, and yaupon, and present also, though in smaller proportions, in the cocoa-bean and kola-nut. It is interesting to note that—without premeditation and uninfluenced by propaganda, and without the aid or guidance of chemical experimentation or analysis—different native races widely separated on the face of the globe—in Asia, in Africa, and in both Americas—by accident or unconscious experimental selection discovered, and adopted for consumption, fruits or leaves containing the same stimulant.

CALAMONDIN (*Citrus mitis*), a fruit resembling a small tangerine but with delicate pulp similar in acidity to that of the lime. It can be grown in regions too cool for the true lime.

CALECANNON, or Kolcannon, an Irish dish which consists generally of a bit of salt pork with potatoes, cabbage, and seasoning.

CALF'S BRAINS, HEAD, etc. See Brains, Head, etc.

CALF'S-FOOT JELLY. See Gelatin.

CALIPASH, CALIPEE. See Turtle.

CANARY-SEED, the seed of the canary-grass, native to the Canary Islands, long ago naturalized in many temperate climates. In the Canary Islands, southern Europe, and North Africa, it is grown for human food but in this country its principal use is for cage-birds.

CANDIED, or Glacé, Fruit, fruit saturated with sugar. That used is generally ripe and may be pitted, but is in some cases unripe. If "stone" fruits are to be treated unripe, they are taken while their seed-shells are still tender. The first boiling is in light-degree sugar-sirup, followed by setting to cool in large crocks. The process is repeated a number of times, the sirup being of heavier degree on each occasion. Finally comes boiling in the glazing-sirup, which includes 20% of corn-sirup, and then drying. The corn-sirup of the last immersion prevents crystallization and gives the desired tender, satiny exterior.

Crystallized Fruit is prepared in the same way, except that there is no corn-sirup in the last immersion, and the sugar consequently crystallizes on exposure to the air.

The housewife can make a very showy confection by cutting the red heart of the watermelon into slices and next into fancy shapes, immersing them for a day or so in heavy sugar-sirup, and then allowing to dry. The pink and red color showing through the crystal coating makes an extremely pleasing appearance.

CANDIED PEEL, the rinds of citrons, lemons, oranges, and other fruits, preserved by boiling in sirup. See especially Citron.

CANDY. A great diversity of materials is employed in the manufacture of candy. Chief among them are sugar, chocolate, corn-sirup, coconut and other nut meats, fruit pulp, cherries, licorice, gum arabic, cooking starch, and molasses. Endless varieties are produced by mixing and blending and coloring—almost any desired tint being now obtainable by means of vegetable colors or harmless coal-tar dyes (see Colors). Eaten in moderation—being careful to avoid putting it into either an empty or a full stomach—candy is a wholesome and highly nutritious food.

Candies may be classified according to their nature or manufacture as follows:

Hard-boiled Candy. Cooked to a high degree of temperature, as *stick candy, lemon drops,* and *hoarhound drops.* These are generally made by the vacuum process.

Open-fire Candy. Cooked in open kettles and pulled over hooks or on pulling machines, as *molasses taffy* and *cream taffy.*

Pan Work. Various forms of candy, nuts, etc., coated with sugar in revolving copper kettles or pans, as *sugar-coated almonds, jelly beans, cinnamon imperials, burnt almonds,* and *burnt peanuts.*

Gum Work. Candy cooked in large melting kettles, then molded in impressions made in starch, dried, separated from the starch, and sugared, as *gum drops.* These are also allowed to stand in sugar-sirup over night, crystals thus forming on them and giving them a brilliant lustre.

Chocolates. Various kinds of candy, fruits, nuts, etc., dipped in chocolate, such as *chocolate creams* and *chocolate almonds;* also *plain chocolates*—sweet, bitter, and milk.

Creams. Sugar cooked low, or to a "soft ball," and beaten to a creamy consistence, molded in impressions made in starch, dried, separated from the starch, and crystallized.

Caramels. Sugar, corn-sirup, and cream or milk cooked in open stirring kettles, run out in thin sheets on marble-slab tables, and cut into squares when cooled.

Coconut Candy. Sugar, corn-sirup, and coconut, cooked in open stirring kettles, rolled out on marble-slab tables, cut into various shapes when cooled, and finally rolled in sugar or crystallized. Also numerous other coconut products—as caramels and raw coconut with molasses and sugar.

Marshmallows. Sugar, corn-sirup, and gelatin, beaten together, molded in impressions in starch, dried, separated from the starch, and dusted with powdered sugar.

Fudges. Plain and with fruits and nuts.

Lozenges. As *peppermint* and *wintergreen,* cut into various shapes and designs.

CANNED GOODS. In commercial parlance, the title of "canned goods" is generally restricted to food put up in tin cans and sterilized by heat. By popular use, it is frequently—perhaps generally—applied to all foods preserved by hermetical sealing, whether in tin or glass, and whether heat, or brine, or some other agency is the chief factor in preservation. This article is devoted to foods preserved by heat-sterilization and hermetical sealing, whether in tin or glass. The aim in every case is the same—to kill all micro-organisms in the product, and then, by the exclusion of all air, to prevent any new ones from gaining access to it, for micro-organisms produce fermentation and speedily render any food unfit for consumption.

The list of canned foods is a long one, and includes a great many fishes, meats, fruits, vegetables, poultry, soups, etc.—yet the industry is susceptible to still greater development. Current opinion in this country credits the United States with being the foremost exponent of canned goods, and it is true that it is both the largest producer and the largest consumer, and that in several cases (such as tomatoes, corn, and salmon) our output is considerably greater than the total of all other parts of the world combined, but in diversity we have much to learn from Europe. We are all acquainted with some of the special French lines but it would surprise the average reader to see the multiplicity of the outputs of other continental nations. Holland, for instance, has canneries which put up from two hundred to several hundred different articles. The list includes nearly every possible vegetable, both separate and mixed—as several varieties of peas, separate, and combinations of ''green peas and spring carrots,'' etc.; numerous mixtures of vegetables and meat—as, ''beef and onions,'' ''green peas and veal,'' ''chestnuts and sausages,'' and ''spinach and ham''; and all kinds of meat delicacies, poultry, and game, as well as soups, sauces, and fruits. The most numerous are vegetables, meats, and mixed meats and vegetables.

Many of the canned products used in Europe but at present unknown in this country, are sure to become popular here in course of time if canning interests foster public confidence by rigid inspection of their outputs and unremitting vigilance to see that irresponsible or unscrupulous concerns do not foist undesirable goods on the market.

There are also opportunities in blending, mixing, and spicing fruits, etc., which would extend to a wide field many delicious combinations of the types that have made clever housewives locally famous.

The present method of canning is the process invented by a Frenchman named François Appert a little more than a hundred years ago, improved and amplified by modern mechanical devices and equipment.

The industry was established in the United States about 1819 and for a generation was concerned chiefly with the packing of fish and shellfish. Its great forward movement commenced with the impetus derived from Civil War conditions. Its development since has been rapid, its popular credit fluctuating though somewhat curiously—enhanced by the high grade and high prices of luxury products, and damaged by the poor quality of some of the cheaper goods put out in now happily-bygone days by inexperienced and unsupervised concerns. Its field has steadily expanded—beyond emergency and army needs to a general conservation and distribution of perishable foods of every kind,—and again beyond that, for convenience instead of perishability is the reason for the canning of enormous totals of dried beans and similar foods. Our canneries serve indeed as huge community kitchens in which all the rough and dirty work of vast quantities of foods is done for the convenience and nourishment of innumerable households. Thousands of acres of fruit and grain and vegetable lands, great herds of cows, and fleets of fishing craft are dedicated to their service.

The prime objects of an up-to-date cannery are to be located as close as possible to the supply, and to get the supply into the cans in the shortest possible space of time. The principles are simple. The first is that the foods be fresh and sound, and of the right degree of maturity. The essential operations that follow their delivery include grading, cleaning (and trimming, peeling, and cutting, where and as necessary), "seasoning" (the addition of sirup, or brine, etc.), the removal of part of the air content of the filled can by a short preliminary low-temperature cooking in an exhaust box, followed by capping or sealing (or a corresponding vacuum-removal of air during capping), and, finally, the most important step—sterilization by cooking (or "processing"). The air-exhaustion makes it easier to detect "swells" in the finished product and minimizes the danger of the cans bursting or being rendered leaky by air-expansion during cooking. Exhaustion is omitted for articles (such as corn) filled hot into the cans.

The details vary with different foods and cannery methods.

Some foods are placed in the cans in a raw condition, others are first "blanched," or parboiled, for one to fifteen minutes. In asparagus, beans, and peas, the object of blanching is to remove a gummy substance and cause a certain amount of softening. In apples, peaches, and pears, it is necessary in order to make them more pliable.

A few foods (as some high grade fruits) are sterilized below the boiling point, but as a rule cooking, or processing, is at or above the boiling point. The ordinary run of fruits (including tomatoes) is generally processed at the boiling point, but a higher temperature—in modern practice chiefly by steam under pressure, or in superheated water—is desirable or necessary for most vegetables, fishes, and meat.

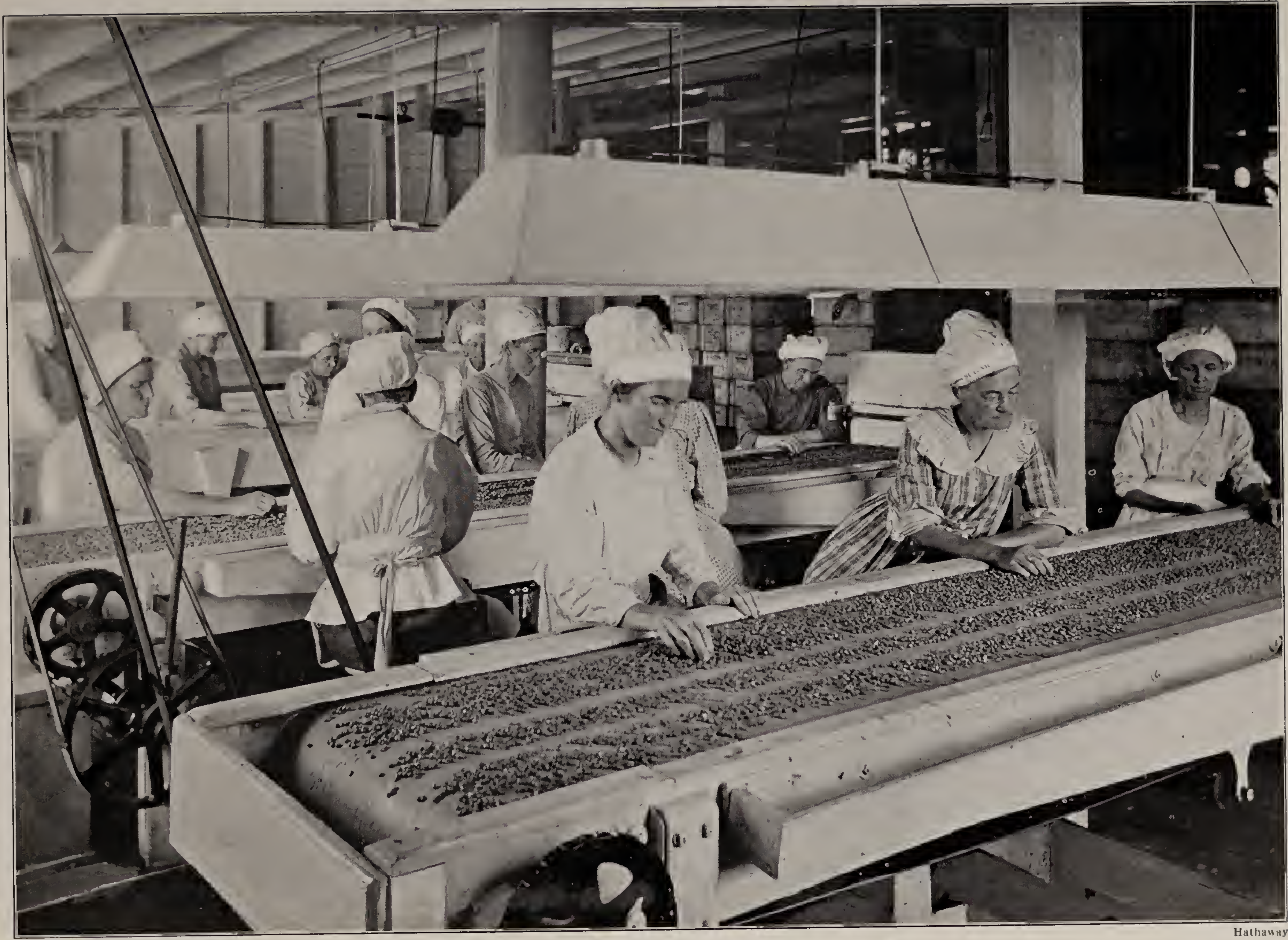
The time required to insure sterilization also varies. With some articles—those of heavy consistence (as pumpkin, and tomato pulp) and those with especially resistant organisms (as meat products), and particularly those dry-packed (as sweet-potatoes)—longer time is needed for the full heat to penetrate to the center of the can than with those which permit the free circulation of water or sirup between the solids (as peas and berries). Also, because of their particular composition, some foods (as corn) need very long processing.

The cans themselves have been improved in recent years. In the "open top," or sanitary can, sealing is accomplished by double seaming on the top, so that no solder is used except on the side seams; and inside-lacquered, or "enamel-lined," cans are now employed for those articles which have a tendency to act upon the tin coating of the ordinary can.

If only fresh, sound, prime foods and good cans are used, if sterilization has been complete, and if the cans are air-tight, the contents, whether meats, vegetables, or fruits, will be as wholesome and nutritious as if fresh cooked in the household and will remain so for a long period if stored in a cool, dry place of fairly equable temperature. The only important change will be in their vitamin content (see FOOD VALUES). Long standing in an excessively warm room, or repeated freezing and thawing, will impair their flavor, and dampness will spoil them by rusting the cans.

Any imperfection in the can or damage to it, which admits even the smallest amount of air, will result in fermentation and decomposition and render the contents unfit for food, so care should be exercised in the handling of all canned goods. A similar result may ensue from imperfect sterilization—i.e., if the heat employed was not sufficient to sterilize every portion of the contents.

Fermentation will tend to make the can bulge. Consequently, if there is the slightest swelling of the can—either top, bottom, or sides—send it back—never on any account use it, for it may be poisonous enough to kill. All canned goods are returnable for this cause—such cans are known as "swells"—being guaranteed by the packer to the jobber and by the jobber to the retailer.



Hathaway

Picking out imperfect peas on moving belts before filling into the cans

It is possible that the contents of a slightly swollen can may be wholesome—the can may have been overfilled, and the swelling may be merely a normal expansion in the warmth of the home or store (such a can is known as a "springer")—but one should never risk eating the contents, as a trained eye and a microscope may be needed to certainly distinguish between a "springer" and a "swell."

The "swelling" is a reasonably sure test for all unopened canned goods except corn—which may be found sour inside a can in apparently normal condition.

A sour or foreign smell noted on opening a can, should always be regarded as a danger signal—whether in corn or any other food—and irrespective of the shape or appearance of the can. No such food should be eaten as it may be actively poisonous.

The reason that jams and other sweet preserves maintain their wholesomeness without such precautions as required for the canning of meats, vegetables, and unsweetened fruits, is that heavy sirup is not favorable to the growth of micro-organisms.

The "biggest seller" in canned goods in the United States is milk. Next are tomatoes (a long way in the lead of all others), corn, peas, baked beans, salmon, sardines, soups, peaches, pineapples, and various meats and sausages.

In hot weather, cans of meat or fish should be well cooled before opening—preferably set on ice. Their contents are not appetizing when taken out in a flabby and warm condition. The simple precaution of cooling will give the fresh, firm appearance desired.

Home-canning. The best method of home-canning is the "cold pack." After proper preparation—trimming, seeding or coring, washing, blanching (or parboiling), etc., according to its requirements—the fruit or vegetable, or other food, is packed cold in the containers (instead of boiling hot as by old formulas), then covered with boiling brine or sirup, etc., sealed (or semi-sealed), and processed or cooked for a sufficient period, or sufficient intermittent periods, to ensure sterilization. Fruits (which include tomatoes) are more easily sterilized than the average vegetable because of their acid content, and advantage should be taken of this fact to avoid spoiling—or, at all events, changing their flavors—by overcooking. The sterilizing of vegetables may be much simplified by acidifying the water-filler—five ounces of lemon juice to the gallon will considerably shorten the time necessary and will render unnecessary any temperature above the boiling point.

Full directions for canning are given in many government, state, and commercially published pamphlets and books. To all formulas should be appended mental vows that only sound foods be used, that strict cleanliness be observed throughout, and that sterilization be thorough beyond question. It is better (especially for the novice) to err on the side of over-sterilization and safety, even if by so doing one risks a trifle of perfection in color and general appearance, than to chance the possibility of leaving some dangerous micro-organism to poison the food thus being prepared to meet future needs. It is true that most bacteria which survive sterilization are prevented from increase and consequent damage by effective sealing, but not all are thus checked. Some are anaerobic—that is to say, they live and flourish without free oxygen—they multiply actively within a hermetically sealed can. Of this type is the *Bacillus botulinus*—the cause of "botulism." Some strains of it have especially resistant spores that are killed only by very thorough sterilization and which, if not killed, generate a deadly poison. The presence of this poison is

Brown Bros.

A warehouseful of canned salmon

usually indicated by a foreign smell in the food affected and frequently by its undue softening, but a desirable and more effective safeguard is to boil all home-canned goods before eating. Boiling for a few minutes nullifies the poison. Foods heavily sweetened or brined and those of acid character (as many fruits) are the least likely to be affected. The botulinus was first identified with decayed sausage and meat. It has since been found in many other foods and in a free state under widely divergent conditions.

CANTALOUPE. See Melon.

CANVASBACK, one of the most famous of wild water-fowl. See Ducks (*Wild*).

CAPERS, the flower-buds of the caper-bush, growing in countries along the Mediterranean and in India. They are used as pickles and to add to sauces.

The caper crop is gathered from June to September or October, the end of July giving the heaviest yield. After picking, they are carefully dried and then stored in barrels of brine or vinegar, the latter being sometimes flavored with tarragon sprigs, elder flowers, cloves, or peppercorns.

During the following winter the capers are graded by passing through sieves—the smallest being esteemed the best—and are then replaced in the barrels and thus preserved until sold. Before shipment they are washed in vinegar of a standard of 12° (this to render them firm) and then filled into barrels without vinegar, the finer qualities to be repacked in bottles, etc.

A fraud sometimes attempted is to mix with the capers a quantity of nasturtium berries, which resemble them in size and appearance. The buds of the bean-caper are also substituted.

CAPLIN, or Ice-fish, a small fish found along the American Arctic coast—very abundant off the shores of Newfoundland and extending south to Cape Cod. It is principally used for bait in codfishing but some of the catch is dried for human consumption. The flesh is delicate and pleasing, somewhat resembling fine herring.

CAPON, a male chicken castrated to increase its growth and weight, and improve its flesh. See Chicken.

CAPSICUMS, bushy, much-branched plants, cultivated in nearly every part of the world, for they have spread around the globe from their native home in tropical America and to-day run wild in the tropics of the Orient. There are two or more species, divisible into many varieties. The small-fruited kinds, generally the most pungent, are best known popularly as "chilies," and the larger as "peppers." "Chilies" are used whole in vinegars and pickles, and ground into cayenne pepper; "peppers" are eaten as a vegetable and ground into ordinary red pepper and paprika. The pungency of the capsicum is formed in the tissues enclosing the seeds, but it passes by contact to other parts of the fruit. See Chili, Paprika, Pepper, Peppers as a Vegetable, and Tabasco; also the color-page facing 387.

CARAMBOLA (also called the *Coromandel Gooseberry* in India), a fragrant Asiatic fruit ranging from the size of a hen's egg to that of a large orange, of oval five-angled shape, with a thin, smooth, generally yellow, coat. As its flavor varies from sweet to acid it is consumed in numerous ways, both green and ripe,—raw, cooked, and in chutneys. It is cultivated to a small extent in southern California and more freely in the West Indies.

CARAMEL, a dark-brown substance obtained by heating either "ordinary" or "starch" sugar to about 200° Cent. It is formed also during the roasting of all materials containing sugar, such as MALT (which see) and coffee. It is much used for coloring wines, spirits, soups, and other liquids, and for flavoring custards.

"Caramels" is the name given to a candy whose soft, mucilaginous character is principally due to its large proportion of corn-sirup. (See CANDY and CORN-SIRUP.)

Caramel Cereal, used as a coffee substitute, consists chiefly of malted grain.

CARAWAY-SEEDS, the deep-brown, highly aromatic fruits, or "seeds," of a plant which grows wild in the meadows of Holland and northern Germany, and is cultivated in many other countries, including the United States—especially in California. They are employed in a variety of ways—as a culinary flavor, in confectionery, and in baking (on and in rye bread, etc.). In Germany they are especially popular for flavoring bread and in Holland for cheese. For these and similar purposes, the general use is of the seeds entire but there is a considerable industrial consumption—chiefly in the perfumery and soap-making industries—of the distilled essential oil.

The caraway-plant can be easily grown by any one in any part of the United States. Its roots resemble parsnips and serve as an excellent vegetable when young and tender. The young shoots may be used for flavoring soups and stews.

CARBOHYDRATES. See FOOD VALUES.

CARBONATED WATERS, or "Soda-water," a wide class of refreshing refrigerant beverages rendered sparkling by impregnating them with carbon dioxide ("carbonic acid gas") under pressure. The term does not include beverages in which the gas is produced within the beverage by the natural process of fermentation. The carbon dioxide is produced preferably from bicarbonate of sodium—the name "soda-water" springs from this, the original method—but generally from limestone, marble-dust, etc., by the action of sulphuric or other acid. The gas is first washed with water and stored in a copper bell, or gasometer, being thence pumped along with water (ordinary or distilled) into copper or gun-metal vessels lined with pure tin, being made to mingle with the water by agitation or other means. When the pressure inside the water reaches about 100 pounds to the square inch, it is passed into cylinders for use at soda-fountains, etc., and into siphons and bottles as carbonated distilled water under trade names; or medicated, as with magnesia or lithia, and as artificial seltzer; or converted by means of flavoring sirups into a great diversity of temperance beverages.

Many spring waters carbonated by nature have important medicinal properties (see MINERAL WATERS).

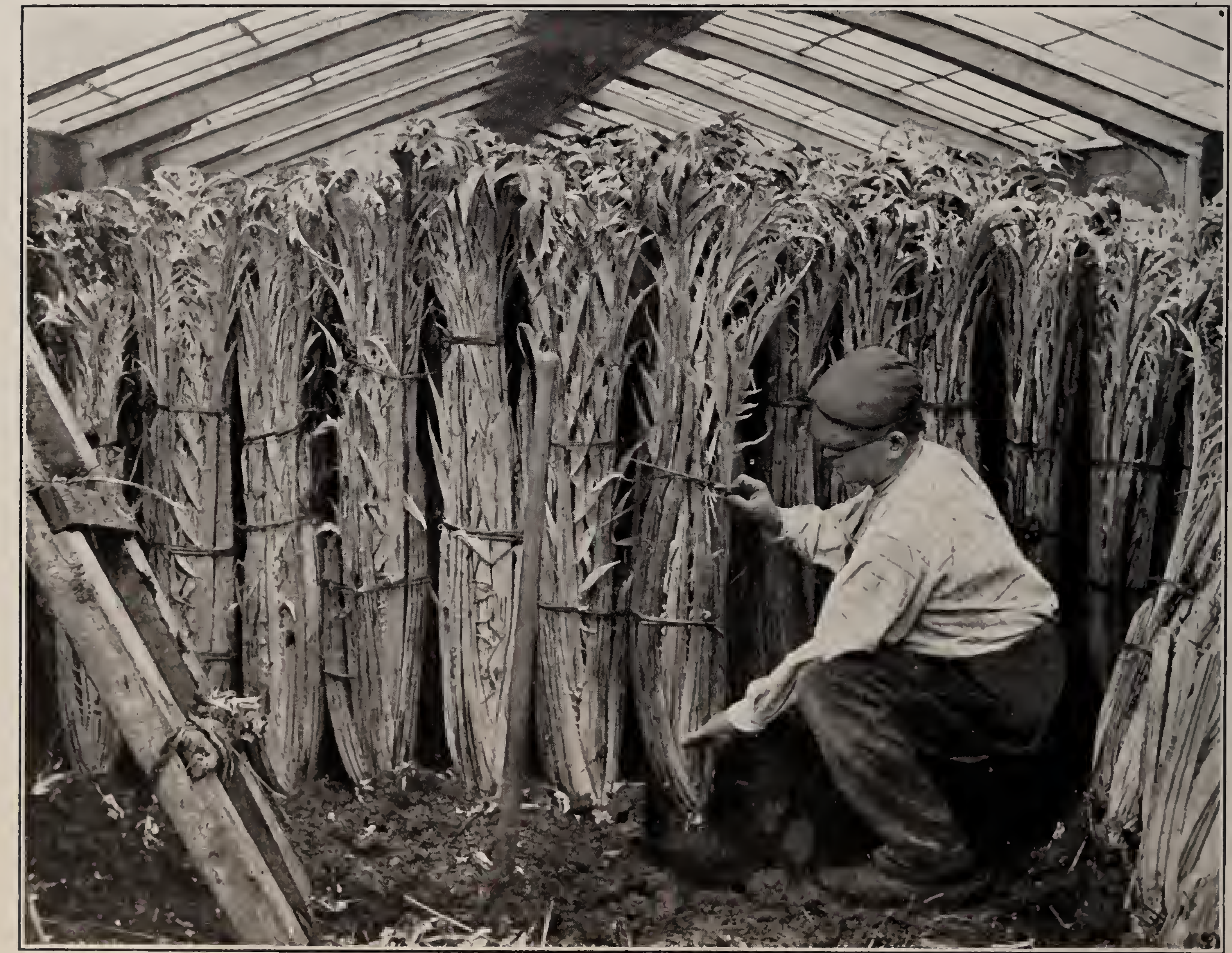
Carbonated water is always cooler as a beverage than plain water held at the same temperature as the escaping gas carries off part of the heat stored in the water.

CARDAMOM, the fruit of a reed-like plant (*Elettaria cardamomum*) native to the mountains of the Malabar coast of India and cultivated both there and in Jamaica. It is a three-cell, ovate-triangular, yellowish pod enclosing a number of small, dark, wrinkled, angular seeds, possessing an aromatic and agreeably pungent flavor. It is used in cooking, especially in curries and soups, and by confectioners. The pods vary from one-quarter to one inch and more in length, the smallest being considered the best. Their flavor merits a more general use in the household—they should be as readily obtainable in a grocery as in a drug-store!

Other "cardamoms," similar in character, are of several East-Indian plants of the *Amomum* genus, especially the "round," or "cluster," cardamom, the Siamese bastard cardamom, and the Java cardamom.

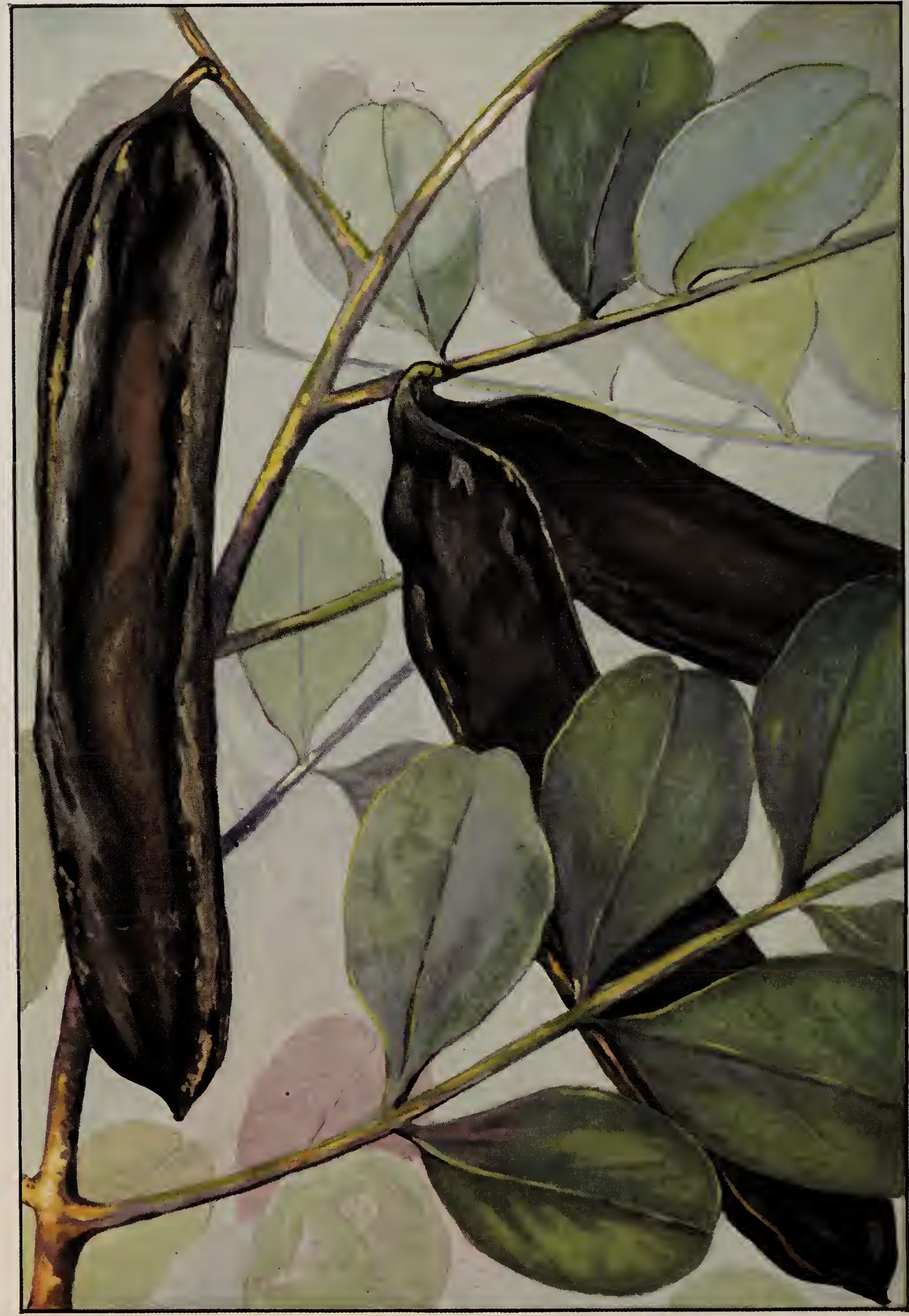
CARDOON, a thistle-like plant closely allied to the artichoke and perhaps of the same species, its differences being attributed to continued selection and long cultivation. The plant is generally more prickly and taller than the artichoke, some varieties attaining a height of eight to ten feet, with leaves often three feet or more in length, greyish-green above and nearly white underneath. It is grown chiefly for the leaf midribs of the young plant, which are thick, fleshy, tender, and crisp if properly cultivated and blanched.

Cardoon is used in salads, stews, and soups, and as a separate vegetable. Considerable quantities are imported from France to supplement the domestic product.



Jacques Boyer

Cardoons taken out of the field for blanching and storage in glass-roofed pits, Paris



CAROB-BEAN, or SAINT JOHN'S BREAD

In cooking as a separate vegetable in its simplest form, the stalk is cut into sections or thin strips, five to six inches long, thoroughly cleaned and scraped, boiled in slightly salted water until tender, then drained, freed from strings if any remain, and served with a white or butter sauce. It should be stirred occasionally while cooking and should be kept covered with water in order to avoid a tendency to blacken. It should not be over-boiled. Cooking in casserole, or otherwise, with herbs, vegetables, fine-cut ham, etc., according to taste, makes an entrée that is both pleasing and novel to the American palate.

The plant requires rich soil and abundant moisture to insure the desired quick, steady growth of thick, full ribs. Equally important is thorough blanching, otherwise the stalks will be tough and rank.

In American practice, blanching is generally performed in the field where the plants are grown. When the leaves are nearly full grown, they are tied together and banked up, first with straw and then with soil, and thus left for three or four weeks. If there is danger of freezing weather, the blanching may be done in a storage-pit, as generally by Parisian market-gardeners.

The test of the value of any variety of cardoon is fullness of rib. Size and lack of spines are characteristics of secondary importance. The variety most highly prized by Parisian gardeners is the Prickly Tours Cardoon. This is one of the smallest, and the most spiny of all, but its ribs are thick, full, and tender.

CAROB-BEAN, or Algarroba, or Locust-bean, or Saint John's Bread, or Honey-bread (see the color-page opposite), the sweet, succulent pod of the carob-tree, which flourishes in Palestine and elsewhere along the Mediterranean. The entire fruit is edible, both fresh and dried, excepting only its few small, hard seeds. It is rich in sugar and fairly so in protein (see Food Values), and is readily assimilable. Its chief commercial value is as cattle-food, but both the ground meal and the molasses-like sirup that the pods yield are pleasing additions to human dietaries. The whole dried pods are occasionally retailed here by peddlers and on fruit-stands as a cheap confection.

The title ''locust-bean'' (applied first in Greek) had its origin in a certain resemblance the carob-pod bears to the big ''migratory locust'' (*Pachytylus migratorius*) with its wings closed. The name in turn gave birth to the supposition and tradition that the pods were the ''locusts'' which John the Baptist ate in the wilderness. The supposition is incorrect, for the locusts of St. John were the insects—much relished as a food in many parts of the East, roasted and otherwise prepared. The pods were, however, actually the ''husks'' with which the prodigal son would fain have filled himself, and which he was feeding to the swine.

The carob-tree is a handsome evergreen, attaining a height of forty to fifty feet and living to a great age. It thrives in any climate suitable for oranges, and, with early care, in higher latitudes. It is a prolific bearer, on good soil yielding an enormous quantity of food to the acre—a tonnage much greater than that of any grain.

It is probable that the future will see extensive plantings by far-sighted farmers in both California and the South. England—which cannot grow the tree—annually imports thousands of tons of the pods to be ground into meal for cattle, and rising costs of other feeds have recently resulted in considerable shipments into this country and Canada.

Common, or "German," carp

CARP (*Cyprinus carpio*), a fresh-water fish, prolific, exceptionally tenacious of life, and easily bred and naturalized, which has been widely distributed throughout the world by human agencies and is obtainable in nearly every part of the United States. It favors especially the still waters of lakes and ponds, and a diet of aquatic plants. It is of compressed shape, generally bronze in color, and with scales of considerable size. Large specimens weigh from fifteen to eighteen pounds—up, occasionally, to much greater weights.

The carp in its original style (the Common Carp) is generally known here as the "German carp"—recording its first introduction from Germany. Specially developed types carry specific distinguishing titles—as the "mirror carp," in which the scales have been bred to yet larger size, and the "leather carp," which has lost them almost entirely, carrying instead a thick skin. In England the title German carp is applied to a separate species of smaller fish (*C. carassius*). *C. carassius* includes the Chinese variety which by breeding and selection has become the "goldfish."

Carp spend much of their time in muddy bottoms and banks, and an unpleasantly muddy flavor is often noticeable in pond fish taken during the summer months. This can be eradicated by keeping the live fish in fresh water for a few days. Where this is not practicable, the result can be obtained almost equally well by skinning and then soaking in mildly salt water for three or four hours, as the greater part of the muddy flavor lies in the skin and the fat immediately beneath.

Only the smaller fish should be fried. The larger are best stewed or baked, and are improved by the addition of lemon, or mace, onions, bay-leaves, parsley, or cloves.

Carp roe is consumed as a cheap grade of "caviar." Its pink or red tint distinguishes it from true CAVIAR (which see).

CARRAGHEEN, or Irish Moss, or Pearl Moss, a species of small edible seaweed, varying from greenish-yellow to purplish brown, named after Carragheen, Waterford County, Ireland, which is found on the coasts of the British Islands, rocky shores of continental Europe, and the eastern shores of the northern United States and Canada. Similar varieties abound also on other parts of the American coast-line.

The carragheen of domestic use is obtained principally from New Hampshire and Massachusetts, the harvest extending from May to September. After gathering, the plants are washed in salt water and spread on the beach to dry and bleach, the process being repeated several times.

As marketed, carragheen is in pieces of from two to three inches to a foot in length, cartilaginous and flexible in texture, branching in shape, and varying from a reddish brown to straw-color or white.

The greater part of the supply is employed in the clarifying of malt beverages. The remainder is retailed through druggists and grocers, the best qualities packed in half-pound and pound boxes.

To make a pleasing beverage, which is considered also a good demulcent for coughs, a scant ounce of carragheen is placed in a quart to three pints of water, gently heated until the liquid is sirupy in consistence and then strained, milk and sugar, or sugar and lemon juice, being added to taste.

In the preparation of blanc-mange or jelly, a larger quantity is required. A good receipt is to soak a small cupful in cold water for about five minutes, then tie it in a cheese-cloth bag, place in a double-boiler with a quart of milk, add a little salt, and cook for a half hour. When done, take the bag out, flavor the liquid with lemon or vanilla extract and pour into a mold or small cups, previously wet with cold water. When the jelly is set, it can be eaten with sugar and cream, or fruit, as desired.

For its food value see the general article on SEAWEED.

CARROT, one of our most wholesome vegetables, consumed in a variety of ways —separately and in soups and stews. It deserves more frequent recognition as a separate vegetable than it receives in the average household. It is noteworthy for its vitamin content and as a good provider of calcium, phosphorus, and iron. Its sugar percentage runs from 5 to 10%—occasionally higher. Cooked soft and flavored (with lemon or orange, for example) it was formerly popular as a domestic jam—as "carrot marmalade."

When purchasing carrots, see that they are firm to the touch, small or moderately so, plump in shape, rich in color (a deep red or a rich orange), and crisp when broken. Only by confining oneself to young roots of good characteristics can one expect to enjoy the full tenderness and delicate flavor of which the carrot is capable. Older roots and the larger, coarse, field varieties are excellent as cattle-food but under normal conditions should not be used as a table vegetable.

In cold storage, carrots have been held in barrels from November to the middle of July. Under other conditions they tend to heat and decay. If cold storage is not available, they are best stored on slat platforms and covered lightly with sand in a well-ventilated basement or other place where there is no danger of freezing.

The juice of the red varieties is frequently employed on the farm to color butter.

See also references in the general article on VEGETABLES.

CASEIN, the caseinogen of milk after precipitation—skim-milk and buttermilk being used for its commercial separation. It is the preponderant protein constituent of milk, constitutes the greater part of the curd of soured milk, and is an important (in some types, the chief) ingredient of cheese. Separated and dried, it is a crumbly sort of powder, varying from white to yellowish according to the process employed. It is incorporated in many "prepared foods"—blended with flours, etc.

Industrially, casein is employed in painters' materials, in paper manufacture, as a substitute for ivory and celluloid, and in the textile industry.

Vegetable casein, similar in character, may be obtained from seeds—with special ease and abundance from soy-beans.

CASHEW-NUT (see illustration in the color-page of Tropical Fruits facing 244), a kidney-shaped nut, the fruit of the cashew, a large, spreading, widely cultivated tropical tree. The nut develops pendant fashion on a grossly enlarged, pear-shaped, edible fruit-stalk known as the "cashew-apple."

The kernels are greenish-brown, rich in milky juice when fresh, and with a delicate almond flavor. They are eaten raw, roasted, and pickled. The whole raw nut should never be crushed by the hands or teeth, for between its two shells is a thick liquid which is so caustic that it readily blisters the lips and skin. The acid disappears with heat, so roasted nuts—the form in which they are generally marketed here—do not offer this objection.

The "apple" is generally red or yellow, sometimes nearly white, and in good specimens attains a length of three inches. It is seldom seen in this country but it has a pleasing subacid flavor and is enjoyed locally.

CASSAREEP, the juice of the bitter cassava, or Manioc (which see), boiled to the consistence of thick sirup and flavored with spices. It is used as a basis for various sauces and as a culinary flavoring, principally in tropical countries. It is exported chiefly from British Guiana.

CASSAVA, Cassava Starch. See Manioc.

CASSIA-BARK. See Cinnamon.

CASSIA-BUDS, the dried flower-buds of the tree which yields Cassia cinnamon, to which their flavoring is similar. In appearance they somewhat resemble cloves.

CATALO, a cross of the bison, or "buffalo," with domestic cattle. It was at one time heralded as a means of increasing our meat supply by producing heavier beef animals.

CATCHUP, originally, in English usage, a relish or sauce of which the juice of salted, spiced mushrooms was the chief ingredient. In England the title is still best restricted to products having the juice of edible fungi as their base, but in this country it is applied, descriptively defined, to a number of different sauces which consist of the pulp—boiled, strained, and seasoned—of various fruits, as tomatoes or green walnuts, or of a thick purée of oysters or other shellfish. Catchup is judged by flavor, smoothness of consistence, and uniformity and attractiveness of color. The word comes from the Amoy-Chinese *Kôechiap,* or *Kîtsiap,* the brine of pickled fish or shellfish.

CATFISH, a familiar name for a number of fishes, chiefly (in this country) of fresh waters, which are so styled because of some resemblance, real or fancied, to the cat —as barbels about the mouth, giving the effect of a cat's "whiskers," or a purring sound when caught. A number of them are excellent food-fishes—their flesh of fine appearance, flavor, and high nutritive quality—and several attain great size.

The largest of North-American species are the "blue cat," or "Mississippi cat" (*Ictalurus furcatus*), and the "goujon," or "mud cat" (*Leptops olivaris*), both with long, slender bodies and occasionally attaining 100 pounds and upwards in weight, and both of the Mississippi Valley and the states along the Gulf. The blue cat has a small narrow head, narrow mouth, and long barbels. The goujon has a very flat head and short barbels.

Next in size of those generally marketed—with a possible maximum of something over thirty-five pounds—is the Great Lakes catfish (*Ameiurus lacustris*), with a broad head, long barbels, and a rather stout body. Specimens reported as greatly exceeding thirty-five pounds are generally "blue cats."

The species with the choicest flesh is that of the "channel cat," or spotted cat (*Ictalurus punctatus*), of the Great Lakes, Mississippi Valley, and Gulf of Mexico—of fair average size, up to a maximum of thirty pounds or so.

The "small catfish" (*Ameiurus nebulosus*)—the "common bullhead," or "horned pout," or (in Pennsylvania) the "Schuylkill cat"—is comparatively diminutive, seldom exceeding twelve inches or so in length and a pound or two in weight. It is abundant in fresh waters in nearly every section of the United States and is easily caught. Its flesh is good and (properly prepared after the removal of its coarse brownish-yellow or blackish skin) will compare favorably with that of many more highly rated fishes. "Catfish dinners" of this particular "cat" are popular in Philadelphia and elsewhere along the Schuylkill river.

Keystone View Co.

"Small catfish," or "common bullhead"

Noteworthy among Southern species are the "white," or "Potomac," cat (*A. catus*) and the "yellow cat" (*A. natalis*). The "white cat" is in many respects similar to the Great Lakes catfish, and the "yellow cat" to the "small catfish."

The biggest of all catfishes is the European Wels, or "Sheatfish" (*Silurus glanis*), which reaches a length of ten feet and a weight of four hundred pounds.

CATNIP, or Catmint, a field-plant growing wild throughout the United States. The leaves and young shoots—aromatic, pungent, and more or less bitter—are occasionally used for seasoning—and formerly, in "catnip tea," were famed as a domestic remedy. The leaves are best while the plant is blooming. They are easily preserved by drying.

Everyone is familiar with the pleasure a cat finds in playing with catnip, and catnip-balls, containing a few pieces, are an article of regular sale.

CATSUP, one of the several spellings of CATCHUP (which see).

CAULIFLOWER, a cabbage in which the flower-buds and flower-stalks form a compact white mass, or "curd," this constituting the vegetable proper instead of the leaves. It has been considerably improved by modern selection and cultivation but it is not, as many suppose, a vegetable of modern, or even comparatively modern, origin, for it was grown along the Mediterranean for centuries before it found its way northward and via England into North America. A fine cauliflower—one with a large, close curd—smooth, firm, and white—represents a great deal of care in plant selection, in cultivation, and in marketing—especially in protecting it from discoloration by sun or rain during its growth, and from dust and bruising after cutting and during shipment.

A rough-surfaced, or "ricy," curd, or one divided by leaves or otherwise broken, or of yellow or green tint, indicates inferior quality, and dark or soft spots warn of staleness and decomposition.

See also Broccoli.

CAVALLY, the Spanish-derived colloquial name for "horse-mackerel." It is applied to *Carangus hippos* (see Horse-mackerel), *Scomberomus cavalla* (see Kingfish), and other fishes.

CAVIAR, the salted roe of various large fishes of the sturgeon genus (see Sturgeon). Nearly all the world's supply comes from the rivers of the Caspian and Black seas and the Sea of Azoff.

The finest quality is that from the comparatively small seuruga and sterlet species.

After the fish has been killed, the roe is separated from the skin and fine tissues which envelop it by gently rubbing through a sieve. For "fresh" caviar, i.e., mildly salted caviar—for which only roe in the best condition is suitable—it is then salted in the proportion of two to six pounds to each hundred pounds of roe, drained, and put up in air-tight tin packages or glass jars. This mild salting is generally confined to large, high grade roe.

Roe of inferior grades—of smaller size, less uniform, and less desirable in color—as also that of fine grades in which the eggs are too soft or too far ripened for "fresh" packing, is cured with 10% of salt and packed in barrels for export, to be later repacked and cooked in tins for retail handling. This style is a staple food in Russia and much of eastern Europe and is the sandwich and canape caviar of ordinary use here.

The size of the eggs varies from very small to that of peas. The color is generally black but may be also any one of various shades of yellow, grey, dark green, and brown. The real test of caviar is its flavor, and this is as often found in the small as in the large grain and in the black as in any other color, but the large eggs and the grey and yellow, or "gold," are the most rare and therefore the most expensive. The gold color is considered the choicest in Russia, the greyish in Germany.

There is very little caviar produced in North America to-day, uncontrolled slaughter of the sturgeon and other producing fishes having rendered them so scarce that it hardly pays to hunt them. Formerly, in addition to supplying home markets, a considerable quantity of American caviar was shipped to Europe for sale as medium and coarse grades. The present small domestic supply is obtained both from fish of the sturgeon genus, and from the paddle-fish (or "Spoonbill cat"), whitefish, lake herring, and common (or "German") carp. Such caviar should be styled *Whitefish caviar,* etc.

Caviar in America is generally eaten on bread or toast with oil, lemon juice or vinegar, and various garnishes. It is also occasionally served on ice as a special course at luncheon and dinner parties.

Caviarelle is a paste of cod roe.

CAVY. See Guinea-pig.

CAYENNE. See Pepper.

CELERIAC, or Knob Celery, or Turnip Celery, or German Celery, a kind of celery cultivated chiefly for its large, turnip-like root part. It is much esteemed in Europe but little grown here. It is eaten as a separate vegetable, added to soups and stews for its flavoring qualities, and as a salad—for the last-named purpose being boiled, sliced cold, and served with oil and vinegar, and any other desired ingredients.

CELERY, as we know it, is the cultivated form of a plant—found wild in many parts of this country and Europe—which was almost completely overlooked by the epicures of olden times. The varieties of present use are all of modern development, and their history during the past few years has seen a steady stretching of market possibilities. From, at first, a luxury at high prices, obtainable only during certain seasons, celery has in recent years become an article of general consumption, and the finer grades are now on sale all the year round. Great quantities are grown in a wide diversity of localities—California, New York, and Michigan being the largest producers.

Celery requires constant care and cultivation, and rich, moist, soft soil—preferably muck soil—to attain its best qualities. The creamy whiteness of the stalks is obtained by blanching—which generally consists of banking earth along the rows of plants, or of putting boards alongside for the same purpose, when the plants are nearing maturity and shortly before they are to be harvested. Blanching by boards

Logan Studio

Cutting and crating celery in the field

permits closer planting—and therefore a much larger crop to the acre—but the amount of lumber required, its distribution through the fields, etc., are by some growers considered over-balancing disadvantages. In small gardens, paper ''collars'' may serve for blanching. There are two main types of modern celery known to American growers—the ''green,'' and the less specifically green ''golden,'' or ''self-blanching,'' each in numerous varieties. ''Self-blanching'' celeries are generally planted by commercial growers because they are more easily blanched, but they lack some of the fine quality of the best of the green varieties, and the latter are worthy of attention by home gardeners, for late planting at all events, if good seed is obtainable. The self-blanching varieties can be grown white without special blanching, by planting very close and running planks around the plots, but such intensive cultivation necessitates close supervision, ''black-heart'' and other troubles being liable to attack the crop during a hot moist spell.

Every part of the plant can be used to advantage. The stalks and heart are served in many ways—raw, either plain or with various fillings, and both separate and in salad; or (especially the outside stalks) cooked in divers styles. The trimmings, fresh or dried, are excellent for flavoring broths. The seeds are used for celery-salt and numerous pickles and seasonings.

Unless for immediate consumption, celery should (in the household) be kept from contact with the air by wrapping in parchment paper, and be held as cool as possible above the freezing point. The holding period is best made as short as possible—the heart will improve and sweeten with fairly extended keeping, but at the expense of much waste of the outer stalks. Even in cold storage houses, carefully packed in the most approved, small, well-ventilated crates, a month or a little longer is about the average limit without serious loss. Private growers can hold their crop for a while by storing in cool, dry cellars, if packed just as taken from the ground, without either washing or trimming, heads up in long, deep boxes and filled around the roots with sand—the sand being occasionally moistened if the weather and the cellar are very dry.

CEREALS. Agriculturally speaking, the term ''cereals'' includes all species of grasses which bear edible grain, the most important being wheat, corn, rye, oats, rice, and barley. From the standpoint of the average consumer, the term applies specifically to preparations of grains intended for use as ''breakfast foods''—boiled as porridge, or to be served with milk, etc., with little, or no, preparatory cooking—such as oatmeal, farina, and corn flakes.

The subsiding of the temporary popularity which a multitude of cereal preparations and combinations enjoyed a few years ago, banished into oblivion a long list of ''breakfast foods,'' but a number of those which remained by virtue of proved merit and consistent publicity have grown steadily in public esteem.

Cereals thus considered may be divided into three main classes: (1) crushed raw, (2) partly cooked, and (3) malted. In the last-named, part of the starch is converted into Maltose (which see) and dextrin by mixing the ground grain with malt and keeping it for a time at the proper temperature, then passing the mixture through hot rollers and drying.

Under ordinary conditions, it is not advisable to stock cereals in any considerable quantity. If held too long, atmospheric changes are liable to dull their freshness of flavor, and weevils may get in and spoil them.

The more general use of the double-boiler has improved the preparation of cereals, preventing loss by burning and scorching, but in the average household the raw or semi-cooked varieties are still not sufficiently cooked before serving. Thorough cooking—for three or four hours—increases their food value by making them more readily digestible. A "fireless cooker" is the ideal utensil.

Cereals should always be kept in a dry, cool place.

See Farina, Oatmeal, etc., and the general article on Food Values.

Ceriman blossoms and immature fruits

CERIMAN, or "False Bread-fruit," a tropical fruit, varying from cone to banana shape, marked somewhat like a pineapple and occasionally reaching a length of fourteen inches, borne on a tree-climbing vine distinguished by huge perforated leaves. It is abundant in Mexico and Guatemala. The flesh is excellent in flavor, suggesting a combination of pineapple and banana, and delightfully aromatic. The greenish-yellow, husky skin is tender and easily removed.

Swiss chard

CHARD, or Swiss Chard, or Sea-kale Beet, a variety of leaf-beet grown especially for the leaves and stalks, the latter (and also the leaf midribs of some types) being cooked and served in any way suitable for asparagus. The leaves are prepared as greens, or may be chopped up, mixed with cream, and served with the stalks.

Chard is a very pleasing vegetable when well-grown—and it can be grown well with very little trouble. A small patch of the plants gives surprisingly large returns, and a continuous supply from July to frost.

The term "chard" is also applied to the blanched stalks and midribs of the artichoke, cardoon, and several other plants, but is better restricted to those of leaf-beets.

CHAYOTE, or Mango-squash, or Mirliton, the large, fleshy fruit of a climbing plant, native to Mexico and Central America, cultivated in southern California and the Gulf states, especially in Florida and in the vicinity of New Orleans. It is roundish or pear-shaped, varying in color from almost white to dark green, and (in the pear style) in length from three to eight inches. The flesh is firm, crisp, and delicately flavored.

Chayotes are used in much the same way as summer squash—in pies, puddings, and fritters; and as a vegetable—plain boiled, creamed, or baked.

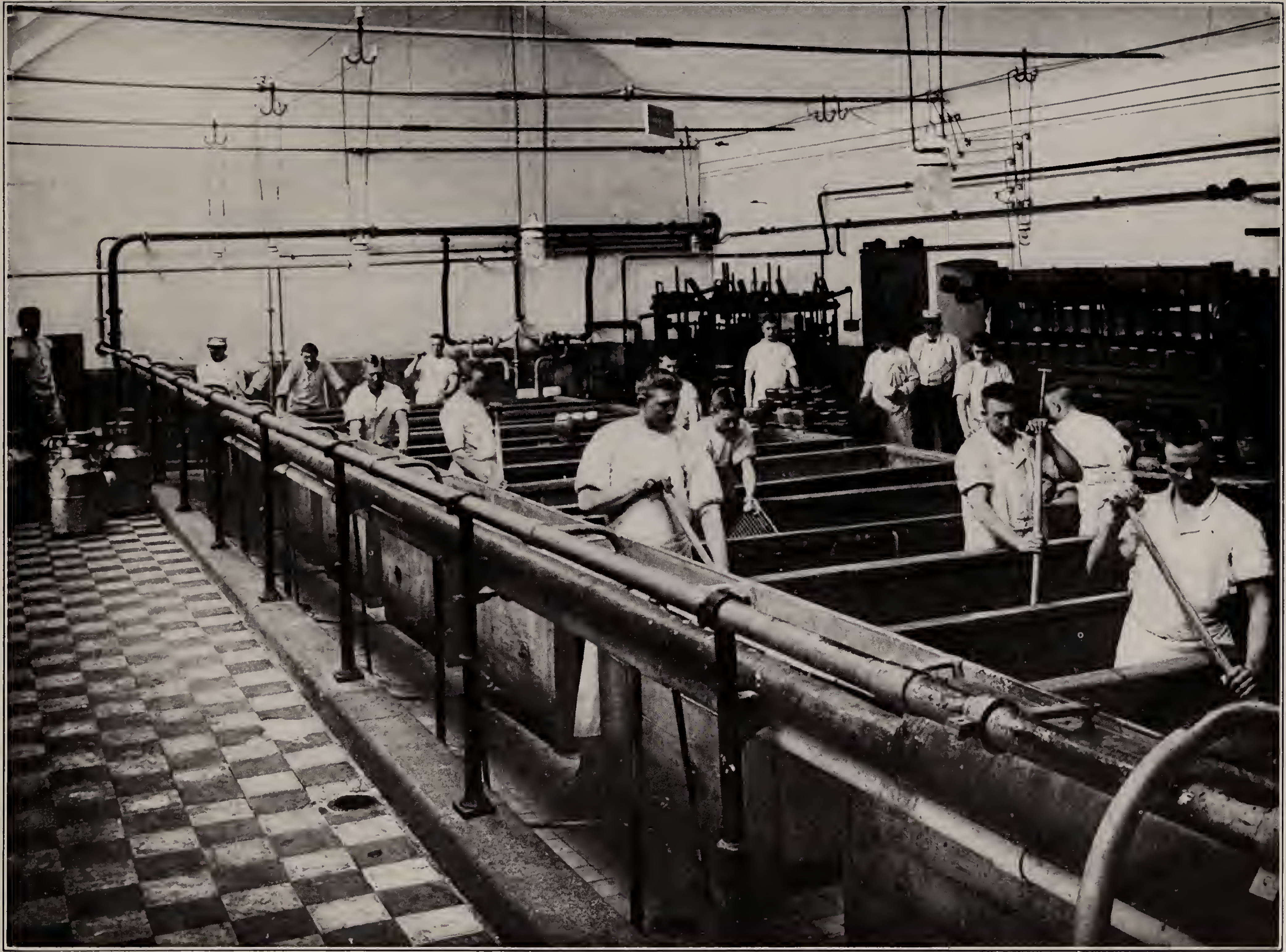
CHEESE, a product which is, in most types, essentially a developed form of the casein, or principal protein, of milk, together with part or (nearly) all of its fat. It contains also some of the sugar, albumin, salts, water, etc.—important in their various effects, but (with the exception, in some kinds, of the water) comparatively small in quantity.

The milk is generally acidified by the action of lactic acid bacteria (the bacteria which cause the "souring" of milk), and then the casein is coagulated, or curdled, by rennet and separated from the whey—the latter being essentially water and milk-sugar together with a little fat and whatever of the other ingredients have escaped imprisonment in the formation of the curd. The curd (except for "sour milk" cheeses) is then further ripened until it "breaks down" and forms a homogeneous product.

The great economic merit of cheese rests in the much longer life it gives to the chief constituents of milk—an exceedingly valuable, but also exceedingly perishable, food.

"Sour milk" cheeses (as cottage, cream, Neufchatel, Gervais, and buttermilk) owe their flavors chiefly to the lactic acid produced by the lactic acid bacteria, but the different and characteristic flavors of most other kinds develop largely during their later development. They are due to the different processes of manufacture and their effects on, or the opportunities they give to, the bacteria present in the milk, and to molds, other bacteria, and yeasts that find access to it during manufacture, or that may be added to it. For example: in Cheddar types (ordinary American, or "store," cheese), lactic acid bacteria are permitted to develop in great numbers before the rennet is added; in Emmenthaler ("Swiss"), Camembert, and Limburger they are not. Again, in Cheddar the moisture content —i.e., the whey left in the curd—is considerably less than in Camembert. This means, among other things, that more milk-sugar is left to ferment in Camembert than in Cheddar. Again, Emmenthaler curd is cooked much longer and at a higher temperature than Cheddar, and Camembert curd is not cooked at all. The greater or less quantity of salt used constitutes another important factor—salt is incorporated in Cheddar before pressing, but not in Emmenthaler, though in the latter it is freely used on the exterior after cooking and during ripening. Difference in temperature during the ripening also means no activity, or moderate activity, or great activity of bacteria, molds, etc.; and the growths of molds may be further intensified by special processes as in Roquefort. Again, the molds may confine their presence to the rind, as in Camembert, the ripening being effected by the enzymes, or ferments, they produce; or they may so permeate and absorb the curd that, as in Gammelost, it almost disappears—and, in consequence, instead of eating cheese flavored by fungi, one is practically eating fungi flavored with cheese! In addition, in order to obtain a special flavor or consistence it may be necessary, as in domestic Camembert, to supplement native molds with a specially propagated foreign variety.

Great skill—whether the result of exact methods based on scientific research, or of long practice based on the experience of generations—is required for the regular, repeated production of a certain required flavor and consistence, for these rest not on one, but on several forms of microscopic life, whose correct balance must be maintained. In Camembert, three of the chief biological factors are lactic acid bacteria, the omnipresent milk mold, and a foreign *Penicillium* mold (the Penicillium genus includes the blue-green bread mold with which every one is familiar). If the lactic



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Cheese-making, Haslev, Denmark—a preliminary hand-stirring of the new curd acid bacteria are permitted to develop in too great numbers before the curding, a true Camembert becomes impossible. If the milk mold overcrowds the Penicillium, the correct consistence will not be obtained. If the Penicillium overcrowds the milk mold, consistence may be good, but flavor will be lacking.

Micro-organisms are not essential to the ripening of cheese—unaided by them, the enzymes present in the milk and in the rennet will break down the curd and produce a palatable article—but they are necessary for the production of the special types—the numerous variations of style and flavor—which have won so many millions of happy consumers, and which are consequently such important market factors.

Cheeses are commonly graded as special, fancy, good, prime, and common. The terms for size and weight are more fanciful—as "Young America" for small cheeses of nine to eleven pounds, and "Long Horn," "Daisy," etc., for larger specimens.

Whole-milk, or full-cream, cheese is made of milk from which no portion of the fat has been removed. United States Standard whole-milk, or full-cream, cheese is cheese containing not less than fifty (50) per cent. of milk-fat after subtraction or deduction of the water content.

Cream cheese is made from milk and cream, or milk containing not less than six (6) per cent. of fat.

By Act of Congress cheese may contain additional harmless coloring matter—this generally consists of an alkaline solution of annatto or other colors from vegetable sources.

Imported cheese comes principally from the Argentine Republic, Canada, France, Italy, the Netherlands, and Switzerland. American exports are widely distributed, England, Cuba, and Mexico being consumers of importance.

In most American households, cheese ranks somewhat as a condiment, being employed chiefly for flavoring dishes, or to be eaten in small quantities, with crackers or bread, near the end of the meal. If, in addition, it is occasionally served as one of the main dishes at a light luncheon, its ordinary round of duties has been very fully completed. This round of duties is however subject to considerable extension. With suitable accompaniments, many kinds can be advantageously used as an occasional substitute for meat or fish in the main meal of the day. Cottage and cream cheeses are for this purpose acceptable to nearly everyone. Other kinds considered "indigestible" by some people are also readily assimilable in most cases when consumed in moderate amounts, mixed or blended with other suitable foods (with spaghetti, rice, vegetables, etc.). This mixing and blending, judiciously performed, considerably increases the list of tasty dishes that are also both nutritious and of comparatively low cost. It is, generally, only when eaten to excess that cheese proves "indigestible"—and the point of excess is most quickly reached when it is eaten without having been dissolved as in the preparation of mixed dishes.

The principal merit of the "end of the meal" consumption of cheese in small quantities, is as a stimulant and aid to the digestion of rich foods. When itself both rich and old, it is efficacious in promoting the secretion of saliva and gastric juice.

In the United States, cheese-making has been transferred bodily from the realm of domestic arts to that of the manufacturer, and farm-cheeses are hard to find anywhere. New York and Wisconsin together produce three-quarters of our entire output. Next in order come the states of Ohio, Illinois, Michigan, and Pennsylvania.

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Curing cheeses, Haslev, Denmark

More than nine-tenths of the cheese made here—the common "American," or "store," cheese—is copied from the English Cheddar. In the manufacture of this kind, the milk is generally warmed in large vats to a temperature of not less than 84° Fahr., and a "starter" is added to expedite the development of the desired degree of initial acidity. The "starter" usually consists of a small quantity of carefully selected milk acidified by the use of selected cultures of lactic acid bacteria, or their descendants. The rennet, or other coagulative mixture, is then added, a pint of average commercial rennet being sufficient to curdle from 2000 to 3000 quarts of milk. After the curd has formed, it is cut into small cubes by curd-knives—blades set in a frame. Following this the temperature is raised slowly, with continuous stirring or agitating, to about 100° Fahr. The whey is next drawn off and the curd is allowed to "mat," or ferment slightly, and it is then broken up, again drained, salted, formed, and pressed. Ten days or so later, the cheese is rubbed to remove any mold, and perhaps paraffined to prevent such formation later. It is then kept until properly ripened for market. Cheese made in Cheddar style, but in which the curd is stirred to prevent matting, is known as "stirred-curd" cheese. It is generally weaker and softer in grain.

The storing of newly made cheese is the next point that engages the attention of the maker and wholesale dealer. A cool cellar, neither damp nor yet too dry, which is uninfluenced by changes of weather or season, is commonly regarded as best for the purpose. The temperature should not be permitted to exceed 50° to 56° Fahr. at any time—an average of about 45° to 50° is preferable when it can be maintained. A place exposed to sudden changes of temperature is decidedly unsuitable. Roquefort, the best of highly ripened types, owes much of its perfection to the dry caves in which it is stored and ripened.

We follow the cheese to the point of general distribution—the retail store. There it frequently suffers from neglect.

In warm weather, cheeses should be kept in a cool, dry place, and frequently inspected and turned over. If one shows signs of swelling, it should be pierced with a wire to give vent to the gas, which can then be expelled by gentle pressure on the swollen portion. All mold or mites on the top of the cheese should be swept or neatly scraped off, and the surface rubbed with a little sweet oil or strong brine. For maggots, or "jumpers," the remedy is to clean the affected parts and keep the cheese well dusted with rice-flour. If the loose sheets or plates which lie on the top and bottom of the cheese are found to be damp, they should be replaced by clean, dry ones.

Cut "store" cheese can be kept moist by pressing lightly buttered pieces of parchment firmly on the cut surfaces or by buttering them. Cut "Swiss" cheese may be protected by a brine-soaked cloth. There will also be less tendency towards dryness, and therefore less loss from shrinkage, if each exposed surface is cut from alternately.

There are countless varieties of cheese, but those described in the following list may be taken as representative of all popular types. Camembert, Cheddar, Cream, Edam, Limburger, Neufchatel, Pineapple, and Emmenthaler ("Swiss") are depicted in the two color-pages facing 88 and 92.

American Cheese, or Store Cheese. This is the Cheddar-style cheese described in the first paragraph of this page. See also *Cheddar* in this list.

Appetitost, a spiced buttermilk-cheese—yellowish, soft, and viscous—put up in fancy shapes, imported from Denmark.

Bondost, a Swedish cheese, domestic and imported, similar to *Gouda*.

"Brick," a domestic cheese made of whole milk, with a strong, sweet flavor. In character it stands midway between Emmenthaler and Limburger. It averages 10 x 6 x 3 inches in size.

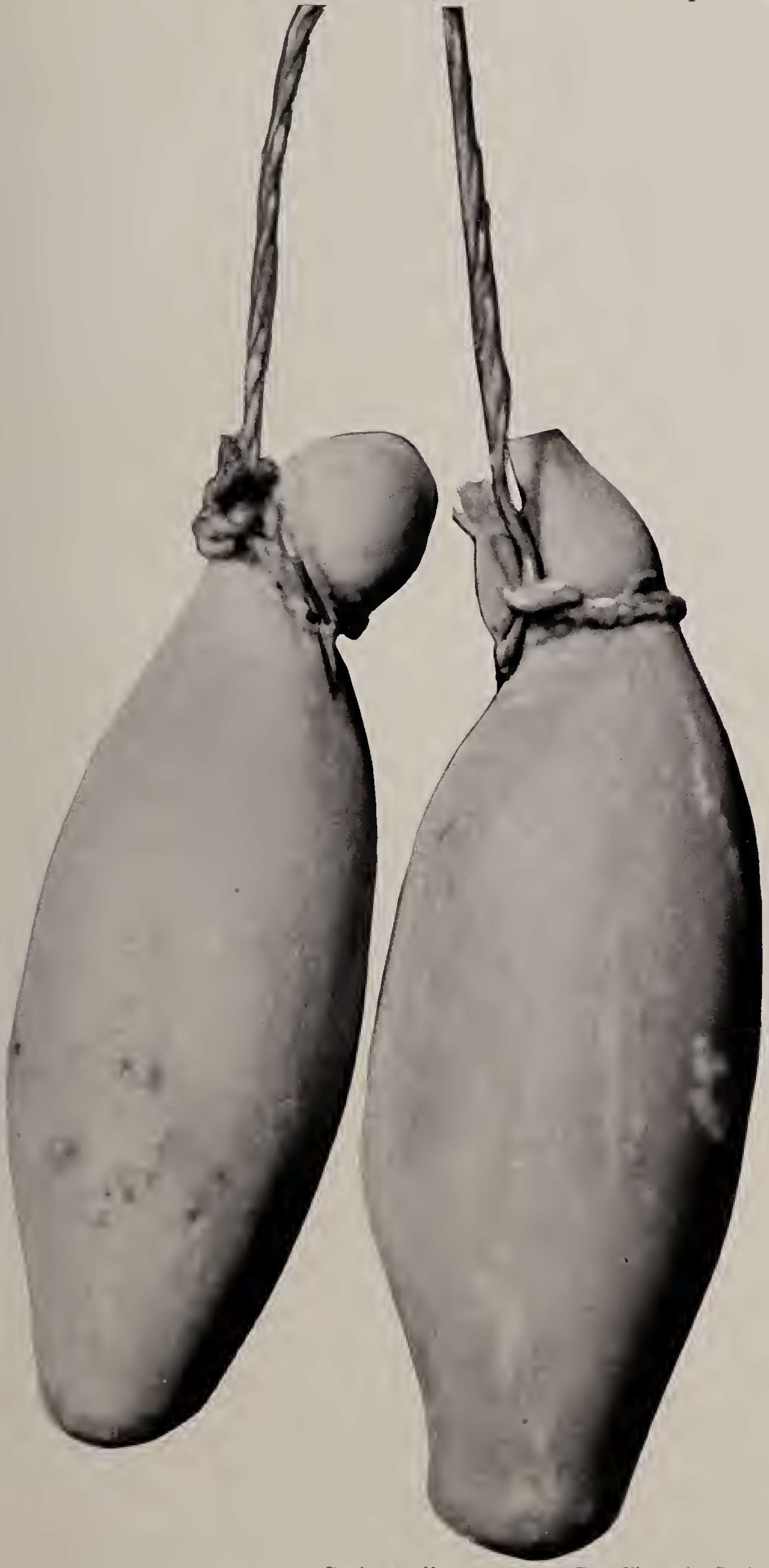
Brie, a soft French cheese of Camembert style. Specimens differ both in size and quality—some are made of whole and some of partly skimmed milk.

Buttermilk, made of the curd of buttermilk. It resembles skimmed Cottage cheese but is of finer grain.

Caciocavallo, a lightly smoked Italian cheese, of whole or partly skimmed milk, generally of roundish-beet or Indian-club shape, and from three to five pounds in weight. Domestic caciocavallo is produced to a limited extent.

California Jack Cheese, a "stirred-curd" domestic cheese, used for the table when fresh, and for grating, etc., when hard.

Camembert, a soft, rich cheese which originated in the former province of Normandy, France, the best still coming from its districts of Orne and Calvados. It is, or should be, from whole milk except when the milk contains more than 3.5 fat—in which case light skimming is practiced. It is generally sold here, wrapped in paper, in round wooden boxes about 4¼ inches in diameter and three-quarters of an inch to an inch in depth.



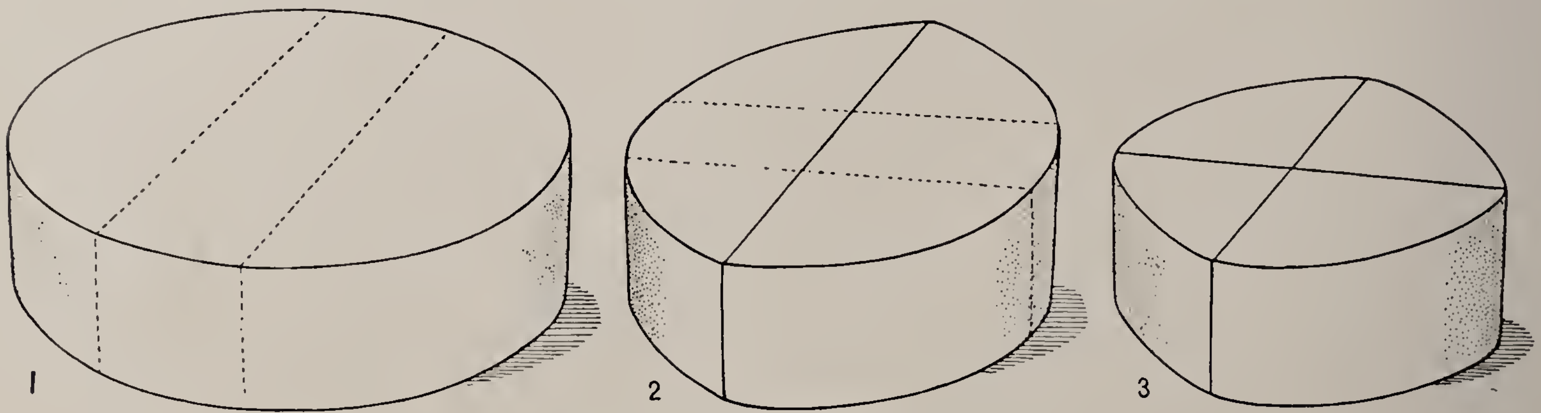
Caciocavallo Press Illustrating Service

The average cheese has a rind—of molds and dried curd—about one-eighth inch thick. The interior is yellowish, and varies from waxy to creamy, depending chiefly on the degree of ripeness. Its characteristic consistence and flavor are not fully present until it is at least in part creamy. If drawn from a cool storeroom the cheese will naturally be stiff, but if it is a fresh specimen and not shrunken it will again become soft if held for a few hours in a warm room.

Camembert is not one of the articles that the housewife can keep in stock, for it does not improve with age after ripening.

More would be used if the ordinary consumer knew how to handle it. At dinner parties or in hotels it is easy to dispose of an entire cheese at one meal but the provident housewife in her everyday catering does not like to see three-quarters of it dry up or run away because the family is small or the cheese is only appreciated by the head of the house—of whichever sex. Nor is it always possible or desirable to purchase the small, wrapped sections now put up for the delicatessen trade.

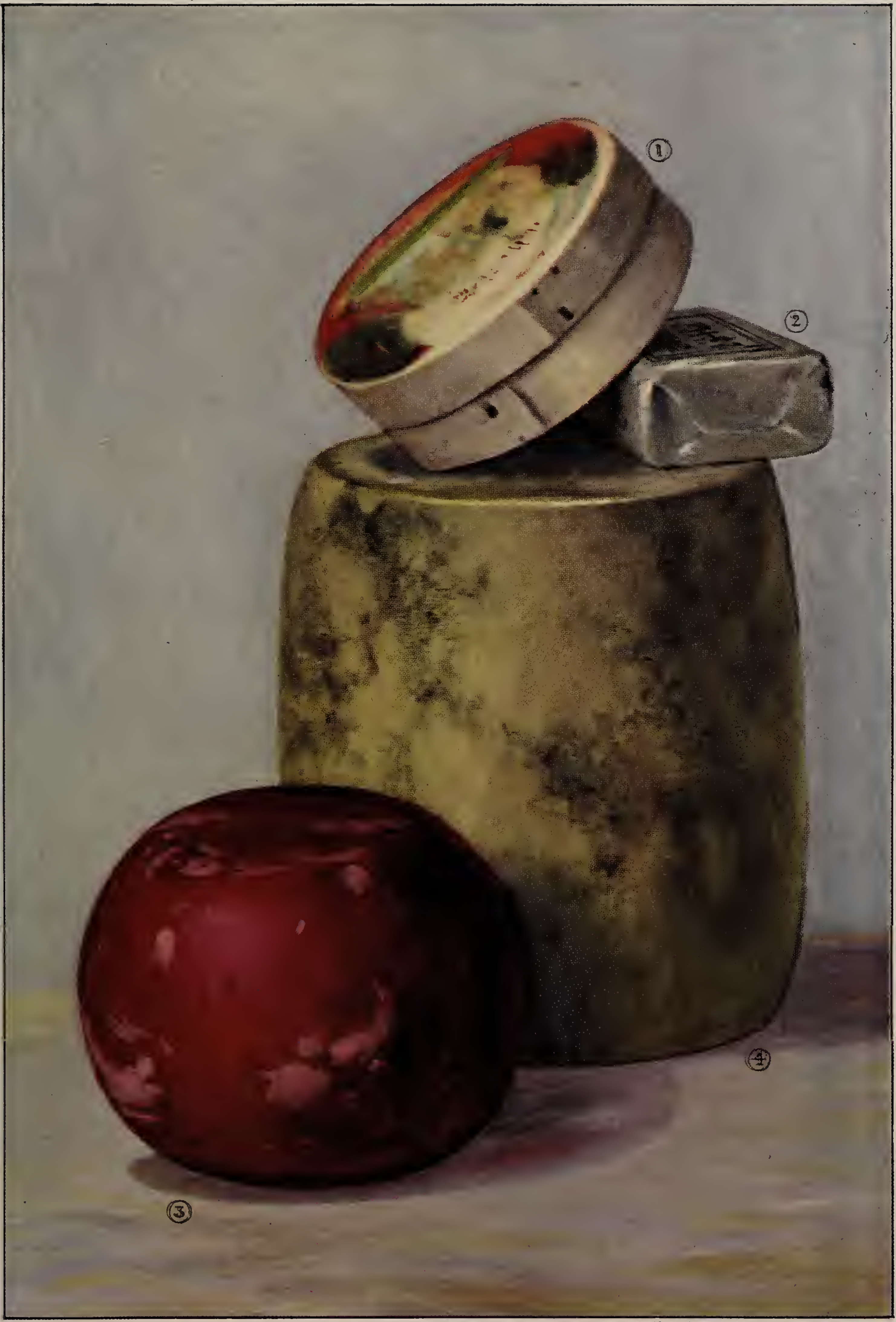
In cutting a whole Camembert for the first time, cut a section as shown in Figure 1 below, and then push the two sides of the cheese together as in Figure 2—the rind will thus continue to protect it. At the second meal, cut through crosswise, and at the end of the meal push the parts together (Figure 3) so that the four quarter-sections again make a circle, exercising a little care in pasting the side joints. This process may be repeated as often as necessary, but it is to be hoped that the cheese will be sufficiently appreciated to be consumed within four meals. Keep it meantime under a large inverted finger-bowl—you can find no better receptacle.



Cutting Camembert cheese

The foregoing descriptions and suggestions apply with equal force to the similar, frequently identical, "Camembert type" cheese now made in various parts of France outside the original districts, and in other countries, including the United States. Some of it is excellent.

As the Camembert *Penicillium*—reference to which is made in the prefatory paragraphs of this article on CHEESE—is essential to the manufacture of all "Camemberts," and as it does not grow in this part of the world, it is necessary to establish it in our factories by means of "special cultures"—the originals of the cultures being molds taken, or "transplanted," from imported Camembert. The cultures are added to the first batch of cheeses just before salting, and if the temperature, humidity, and other conditions are suitable—and are kept so—the molds will not only do their work in the cheeses to which they have been added but their spores will so plentifully pervade the factory that, unaided and undirected, they will impregnate all future batches.



(1) Camembert
(3) Edam

CHEESES
½ Diameter

(2) Cream
(4) Cheddar

Cheddar, one of the most important of all cheeses, named after the village of Cheddar, England, the original place of production. Its manufacture has been briefly outlined on page 86. A characteristic full-size Cheddar averages seventy pounds in weight and is of pale color, neither sweet nor acid, of flaky texture and firm body, with an agreeable nutty flavor and aroma, but the title as now employed applies to the essential process of manufacture rather than to any one type, "Cheddar" being sold in many styles, shapes, and sizes.

All Cheddar is made from sweet milk, and a distinctive feature of its making is the development of the maximum quantity of acid obtainable in the curd without injuring the texture of the cheese—but the milk used may be either whole, partly skimmed, or skimmed, and the cheeses may be white or colored yellow, and may be marketed mild and fresh or thoroughly ripened. In ripening, the common lactic acid bacteria are assisted by the development of a host of the Bulgaricus group. (See reference to these in *Fermented milk* in the article on Milk.) The cylindrical shape is the most popular for large cheeses.

Cheshire, a whole-milk cheese resembling Cheddar but of stronger, sharper flavor, and, as a rule, highly colored. In England, Cheshire cheeses weigh up to as high as 150 and 200 pounds but in this country they range from twenty to seventy pounds, generally in cylindrical shape. From eight to ten months is required for ripening. At full ripening—when fifteen to eighteen months old—it is, if well made, frequently

Illustration Bureau, London

Cheddar cheeses, London

permeated by a bluish-green mold which imparts a flavor of decay highly esteemed by connoisseurs.

Cottage, or Smearcase (Schmier-kase), a sour, skim-milk cheese extensively made and consumed, sold both in bulk and wrapped in tin-foil. The curd is broken up and held at about 100° Fahr. until sufficiently firm—this producing its typical "grainy" texture—the whey next being drained off and the curd placed under moderate pressure. If to be held long, it is packed in tubs and placed in cold storage to prevent further ripening. For eating, it is generally moistened with milk or cream. In the household it should be kept in a cool place until wanted and should be consumed as fresh as possible. "Clabber cheese" is a title often applied to Cottage cheese when it ages and softens.

Cream Cheese. The two chief varieties of cream cheese of American manufacture are (1) sweet, heavy cream thickened with rennet or by the action of lactic acid bacteria, drained and salted; and (2) cream of low fat content, or rich or enriched milk, acidified by lactic acid bacteria and curdled with rennet, drained and salted, and then mixed or worked to a paste. The latter style, molded into pieces weighing two to four ounces, wrapped in parchment paper and tin-foil, and placed on the market fresh (without any curing), is produced here on a very large scale. If well made it is firm, yet gently yielding to a light pressure of the fingers, its mild acidity and smooth richness very pleasing to the palate. It is at its best when eaten within two or three days of manufacture. It should always be kept in a cool place. This same style of cheese, with less milk-fat, generally carries the title of *Neufchatel* (which see).

Danish Cheeses, generally part-skim or skim of Cheddar type.

D'Isigny, a domestic cheese of several styles, from very mild to a close resemblance to Limburger.

Dunlop, a rich, white, buttery cheese, resembling Cheddar, made in round forms of from thirty to sixty pounds. It was formerly the national cheese of Scotland but has been practically superseded in that country by Cheddar.

Dutch Cheese, a general name for *Edam* and *Gouda* cheeses (which see).

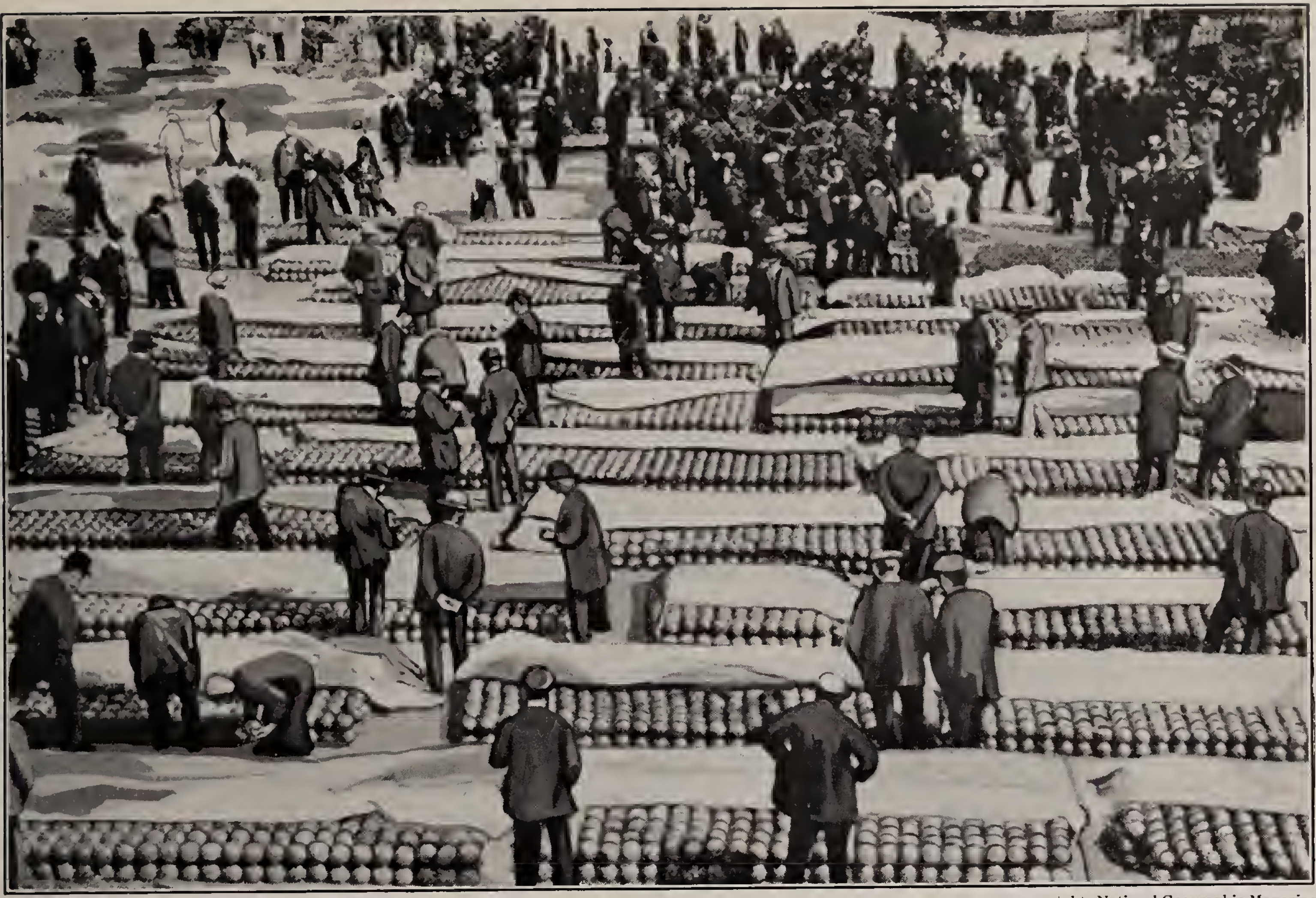
Edam, a highly salted, red, round "cannonball" cheese, averaging three to four pounds in weight, made in Edam, Holland, and its vicinity, principally on farms. The best quality is of whole milk.

The round shape is obtained by pressure of the curd in iron or wood molds, and the color of the outside skin by the use of carmine or a weak solution of litmus and Berlin red. For some markets the skin is colored yellow.

The shells of Edam (and Pineapple) cheese are useful for serving spaghetti or macaroni. Heat the shell in a moderate oven and pour in the (cooked) spaghetti. If the spaghetti is to be browned, set the filled shell in the oven again—this will, however, destroy the shell after three or four times.

Some Edam cheese is now exported in tins instead of in the ball form which has done so much to make it famous.

Emmenthaler (commonly called "Swiss cheese," or "Schweizer"), a whole-milk cheese of mild, rather sweet, flavor and distinctive odor, and generally distinguished by holes, or "eyes," of various sizes and number. It was originally made in Emmenthal, Switzerland, and Switzerland is still a large exporter despite the quantity of similar cheese now manufactured in nearly every country. The French product is known, both in France and by export, as Gruyère—which takes its title from the



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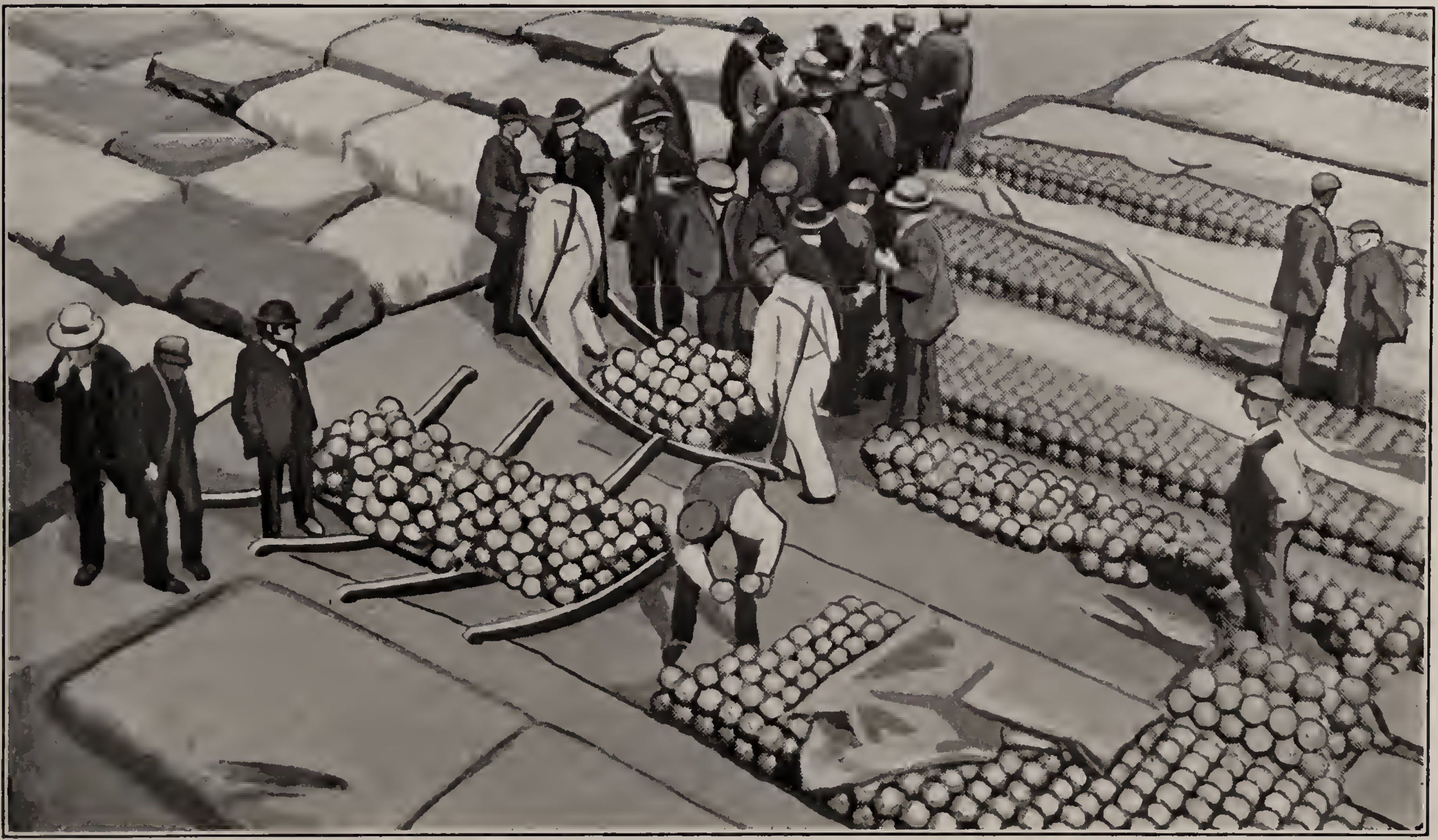
A part of the golden field as seen from a window in the weigh-house tower. Each of the piles contains from 500 to 900 cheeses



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A pair of official porters taking a tray-load of cheeses to the weigh-house. The picture shows how carefully the piles are covered until and after the hour of the market

THE CHEESE MARKET AT ALKMAAR—the most important distributing point in North Holland for the round cheeses known in America as ''Edam.'' The market is held every Friday, the cheeses being brought into town in great quantities, by boat and wagon, from the dairies of the surrounding districts. Before shipping, they are colored red or a brighter yellow, generally the former.

Swiss village of that name. That made here is—or should be—known as "Domestic Swiss."

The cheeses are often very large—from 60 to 220 pounds each—sometimes in blocks about twenty-eight inches or so long and eight inches square, but usually circular, up to four feet in diameter and six inches in thickness.

A genuine Emmenthaler of the first quality is never less than four months old when exported. If uncut, it will (under favorable conditions) keep for several years. It should be nutty in taste, and rather dry, but tender. The "holes," or "eyes," though generally characteristic, are not necessary to its quality, for many good cheeses are "blind," as dealers describe them. Of this character are the very small Gruyère cheeses packed in Camembert style.

English Dairy Type, prepared in about the same way as Cheddar but cooked for a longer time. It is made extensively here, principally for culinary purposes after it has hardened with age.

Floedeost, a Norwegian cheese similar to *Gjedeost,* but made of cow's milk and less rich.

Gammelost, a Norwegian cheese of skimmed sour milk, golden brown in the best quality, and of strong flavor. A special reference to it will be found on page 82.

Gervais, a French cream cheese made from a mixture of whole milk and cream.

Gjedeost, a sweet, rich, strong-flavored, brown, Norwegian, goat's milk cheese, moist but firm enough to slice well.

Gorgonzola, a rich, pungent, whole milk cheese, produced in the mountain villages of northern Italy. It is mottled like Roquefort, but is of cow's milk, and cheaper. When ripe, it is distinguished by a blue-green mold and resembles a rich, well-ripened Stilton. The clayey outside surface of the whole cheese is a mixture of gypsum, tallow, etc., and is designed to aid in preserving it. Well-made Gorgonzola can be kept in good condition for a year or longer.

Gouda, a Holland cheese made from whole or partly skimmed milk, and colored with saffron. It is pressed in shallow round molds and weighs up to twenty pounds. The larger cheeses are marketed in bladders or other coverings of animal tissue; the smaller may be simply crusted and colored like Edam.

Goya, a hard grating-cheese from Argentine, similar to *Romano* but made of cow's milk and put up in smaller sizes.

"Grated Cheese," any hard cheese grated for use with spaghetti or other appropriate dishes. See especially *Parmesan.*

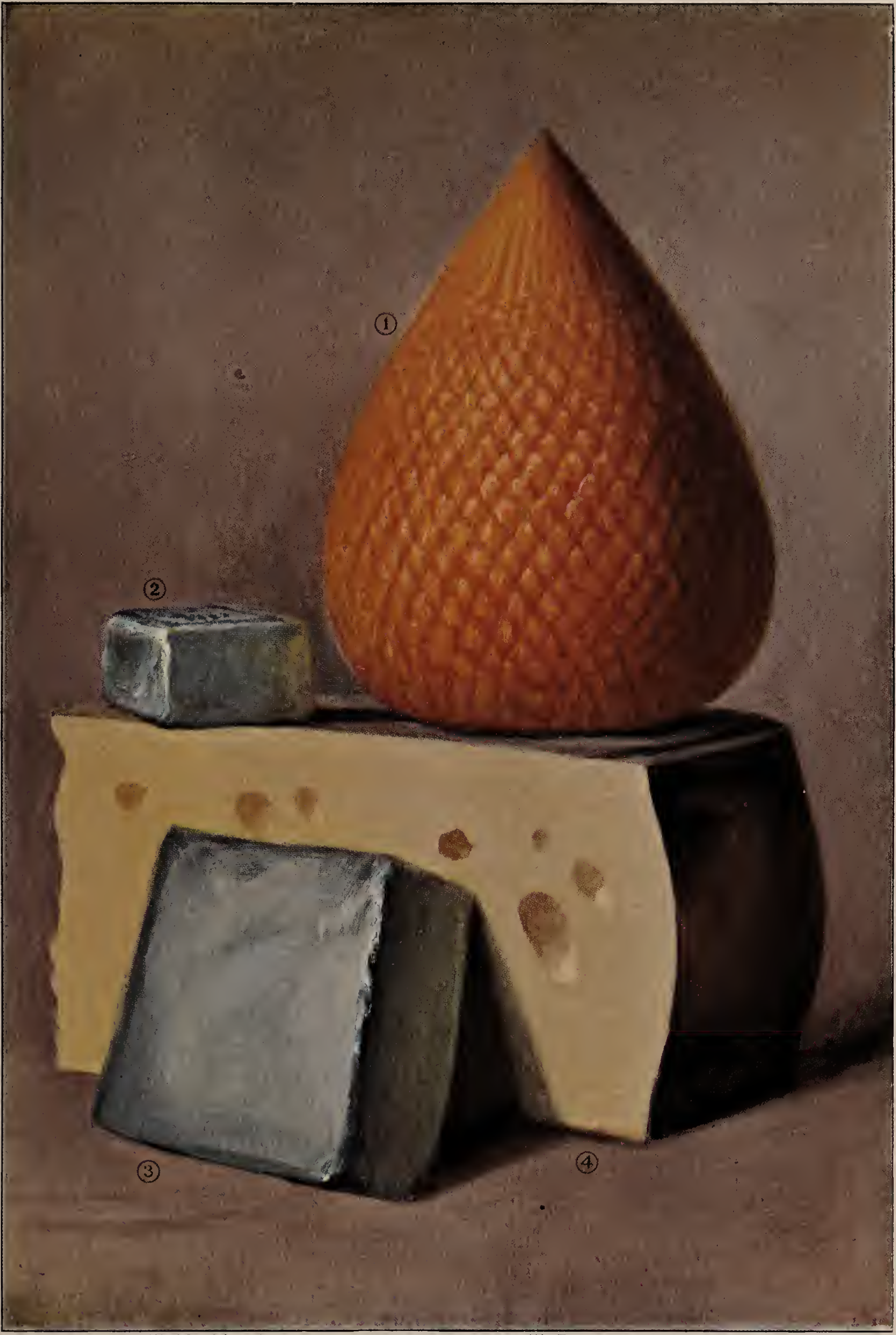
Gruyère, if of whole milk, is essentially a French *Emmenthaler* (which see).

Hand Cheese (so called because originally molded by hand), a small, ripened, sour-milk cheese of, commonly, a mixture of skimmed milk and buttermilk, with, in some styles, the addition of caraway-seeds or various herbs. It has a sharp strong odor and flavor.

Kosher Gouda, made for Jewish trade and bearing a special stamp for identification. It resembles Gouda, but has no bladder covering and averages smaller—about 8½ inches in diameter and three inches thick, and weighing four to ten pounds.

Leyden, a green-mottled domestic cheese, after a style original to Leyden, Holland, of part-skim milk, spiced with cloves or caraway-seeds. The exterior is red.

Liederkranz, a small, soft, American cheese of excellent type, made from a Camembert-style curd, and somewhat like Camembert but richer in flavor. It is put up in rectangular blocks of about four ounces in weight.



(2) Neufchatel
(3) Limburger

(1) Pineapple
(4) Emmenthaler ("Swiss")

CHEESE
½ Diameter

LIMBURGER, a cheese which owes its name to its origin in the Belgian province of Limburg but whose manufacture long ago extended beyond the Belgian border into Germany and Austria, and later crossed the ocean into the United States. The domestic product has proved fully equal to the European, and thousands of tons are made here every season—principally in New York and Wisconsin. The best qualities are of whole-milk; others are of partly skimmed or skimmed. Great care is taken to use pure milk, free from taint, and cleanliness is requisite in every stage of the making. The curd is made from the sweet milk—there is no lactic-acid step—and is quickly cut into cubes the size of dice, or smaller—careful handling being necessary to avoid breaking the butter globules upon which the richness of the cheese depends. It is next stirred, and most of the whey drawn off; then, without being salted, it is dipped out in perforated wooden boxes or molds, about five inches square, and stood to drain, with frequent turning but without the application of any pressure. In a few hours the packages are carried into the salting room and placed edgeways on shelves, like bricks set to dry. Every day thereafter for four or more days they are rolled in salt and replaced when they have absorbed enough. They go next to the curing cellar, to be turned almost every day, and rubbed over and washed with brine. Here the whitish, harsh, hard cheese becomes a ripe Limburger—a rich, buttery product with a yellowish or reddish-brown jacket and, incidentally, the famous "Limburger" odor—which never forsakes it and sticks closer than a brother to all who touch or eat it. It is now packed in paper and tin-foil, and is ready for market—in consistence, contents, and nourishment as rich a cheese as almost any that you can name, but to the uninitiated a malicious and premeditated outrage upon the organ of smell!

LODIGIANO. See *Parmesan.*

MÜNSTER, a whole-milk West-German cheese, somewhat resembling "store cheese" but lighter in color and softer, and generally flavored with caraway or aniseed. Domestic Münster-type is produced here in considerable quantities to meet local demands.

MYSOST, a Scandinavian and Danish cheese made entirely or chiefly of evaporated whey. It is light brown, mild-flavored, and sweet. Its chief component is milk-sugar, which may run from 30 to nearly 60%. In texture it may range from buttery to brittle. A small amount is manufactured here.

NEUFCHATEL, a soft French cream cheese, of various degrees of richness, sold in tin-foil cylinders about two and a half inches long and weighing two and a half to three ounces. Very good "Neufchatel-type" is made here (see *Cream cheese*) sometimes varied by the addition of condiments, as Pimiento cheese. If a full Neufchatel-type, it is of whole milk. Skimmed-milk Neufchatel is essentially the same as Cottage cheese, but is of smoother texture and less acidity. Either kind should be eaten as fresh as possible.

OKA. See *Port du Salut.*

PARMESAN, the title of a group of Italian cheeses, of similar character but differing in quality, so hard that they must be broken instead of cut. In grated form they constitute an excellent addition to spaghetti, some soups, etc. The exterior of the whole cheese is generally dark green or black—the result of coloring matter rubbed into the surface. The interior is usually of greenish-yellow tint. Good specimens bring a high price and will keep for years. The name is from Parma, an important center of distribution. The type best known today is Reggiano, which comes in loaves of forty-five to seventy pounds. Lodigiano is similar but of lesser quality. A whole matured Parmesan requires little care; the grated cheese should be held in an airtight bottle or jar.

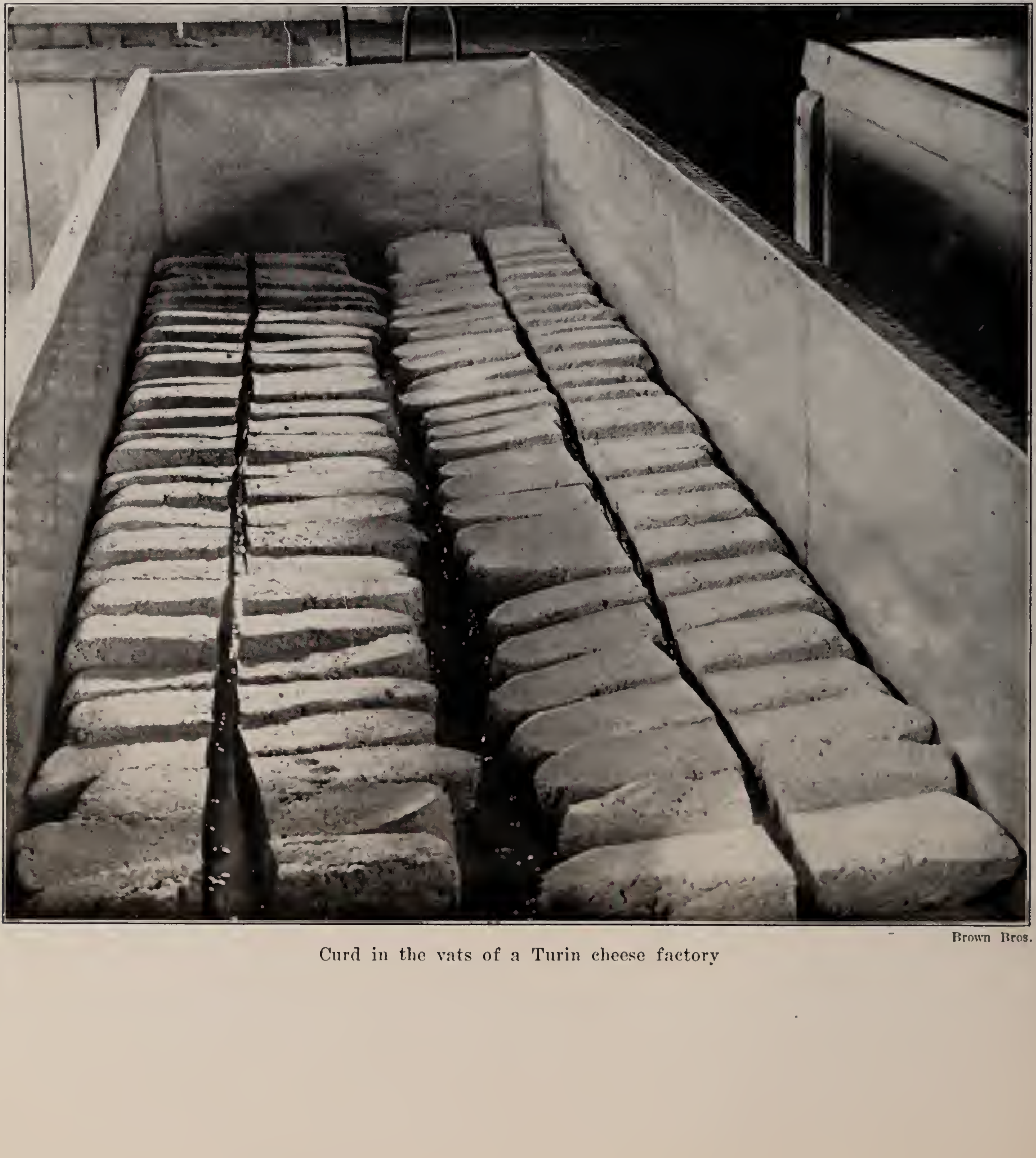
Pecorino, Italian sheep's milk cheese. See *Romano* and *Toscano.*

Pimiento, or (incorrectly) "Pimento," Cheese, any cheese to which ground pimientos, or Spanish peppers, have been added—generally a Cream cheese or Neufchatel, but sometimes a Cottage Cheese, and occasionally Cheddar.

Pineapple, a hard, highly colored cheese of domestic origin, made in various sizes and so named because the curd is pressed in pineapple shape. The diamond-shaped ridges are produced by the cord nets in which the cheese is hung to cure. It resembles Cheddar in manufacture except that it is cooked much harder.

Pont L'Eveque, a soft French cheese, about 4½ inches square and 1¼ inches thick.

Port du Salut, a mild-Limburger style cheese, thin and flat, seven to ten inches in diameter, with firm, tough rind but soft, homogeneous interior. It was originated



Brown Bros.

Curd in the vats of a Turin cheese factory by the Trappist monks but is now produced also by cheese-makers in both this country and Europe. *Oka* is the same cheese made by the Trappist Fathers of Quebec.

POT CHEESE, or PENNSYLVANIA POT CHEESE, a cooked, ripened cottage-cheese curd enriched with butter or cream and seasoned or flavored.

POTTED CHEESE, or CLUB CHEESE, a domestic product generally made by grinding well ripened cheese very fine, mixing with butter and condiments, and putting up in small porcelain jars.

PROVOLONE, a round or oval Italian cheese, domestic and imported, weighing from four to eight pounds, and resembling Caciocavallo. Smaller cheeses, about two pounds each, are styled "Provoloncini."

RABBIT CHEESE, old Cheddar or similar cheese carefully ripened for a considerable length of time—up to two or three years.

REGGIANO. See *Parmesan.*

ROMANO, or ROMANO-PECORINO, an Italian sheep's skim-milk cheese, greyish-yellow, hard, and salty, which originated in the Roman province. It is generally marketed in loaves of ten to twenty-five pounds and is grated for use like Parmesan, but is sharper in flavor. *Sardegna* is a similar smaller cheese made in Sardinia. Numerous imitation Romanos are of cow's milk.

ROQUEFORT, a famous cheese named after the French village of Roquefort where great herds of the sheep that supply the milk are pastured on an immense plain of rich, velvet-like herbage which is stringently protected by both law and custom. The greatest care is accorded these favored animals. The herbage is supplemented by a diet of prepared food; and the water supplied to them is whitened with barley-flour. The yield of milk is indeed stimulated in every possible way, even to beating the udders with the hands after milking.

There are many thousands of the sheep, and very picturesque are the milking hours, morning and evening, when the army of pail-bearing maidens hurry over the fields, each in search of a favorite animal.

The whole morning's milking is mixed with the skimmed milk of the preceding evening, then strained, warmed, emptied into enormous pans, stirred well with willow sticks, a portion of rennet added, and covered and left to curdle. An hour or so afterwards, the curd is cut into pieces about the size of walnuts. Half a dozen other operations follow—then comes the "moldy bread" process which produces the special characteristics of Roquefort.

The bread used is the crumb of loaves of the finest wheat, or of winter barley, leavened with a large quantity of brewer's yeast, kneaded to excess, and thoroughly baked. The crust is removed after standing a day, and the crumb is pounded in a mortar and put away in a damp place till it is covered with mold, the blue-green *Penicillium glaucum.* When it is ripe enough, the new cheeses are thoroughly rubbed with this moldy bread, and layers of it are put between the layers of curd in order that they may absorb still more of the mold.

Finally, after several days' pressing, the cheeses are wrapped in linen and dried, and then taken by the shepherd-dairymen to the village and sold to the owners of the vaults, or caves—natural clefts or artificial excavations in the limestone rocks—hard by the town. The cheeses are piled up and salted in these caves, being frequently rehandled and rubbed to make sure that the salt thoroughly impregnates them. They are next scraped and pricked with long needles so that the mold may run entirely through them—thus producing the distinctive mottled appearance of Roquefort—and then again piled up to dry yet more thoroughly, in this process developing a long white mold which is scraped off from time to time.

In recent years, central dairies have to a considerable extent absorbed the industry, and machinery now does much of the scraping and pricking that was formerly done by hand, but the process remains unchanged in essentials. Goat's milk and cow's milk have also been used in whole or part—the true Roquefort remaining though of sheep's milk only.

Roquefort is generally best served during the cooler months, but if held in a dry cellar of low, even temperature, it may be enjoyed all the year. It is usually eaten in small quantities at the end of a dinner. It is especially delightful if rolled with half its bulk of butter, sprinkled with cayenne pepper, and spread on toasted biscuits. It is also used to fill the hollow parts of stalks of celery, etc.

Domestic Roquefort is of cow's milk, cultures of the Roquefort penicillium being obtained from imported cheeses. The appearance is similar but the flavor is different.

SAGE CHEESE, made by the Cheddar process and in many shapes and sizes. Its distinguishing characteristic is its flavor of sage and its green-mottled appearance when cut. The color was formerly obtained by mixing green sage-leaves in the curd before pressing, but is now generally the result of the addition to the main curd of "green curd" prepared with the juice of corn or spinach leaves or other harmless coloring, the sage flavor being obtained by the use of sage tea or extract.

SAP SAGO CHEESE (*Schabzieger*), a small, hard, usually crumbly, green cheese, made in Switzerland, colored with the powdered dried leaves of the Blue Melilot, a clover which contains the vanilla-like compound, coumarin. It is shaped like a truncated cone—four inches high, three inches across at the base, and two inches at top. It is commonly used for grating and is excellent sprinkled on bread and butter.

SARDEGNA, or PECORINO SARDEGNA. See reference in *Romano*.

SBRINZ. The genuine Italian Sbrinz is made like Reggiano (see *Parmesan*). The Argentine product is about the same as *Sorrento*.

SORRENTO, an Argentine cheese similar to *Romano,* but of cow's milk, not as hard, and in smaller sizes.

STILTON, manufactured chiefly in Leicestershire, and West Rutlandshire, England, is the richest and finest of English cheeses. It is made of whole milk (with, sometimes, added cream) and is of pale color, with veins generally marked by green, or bluish-green, mold. It is greatly improved by age. To be enjoyed at its best, it should not be eaten before it is two years old.

Stilton cheeses are generally twice as high as they are broad, with surfaces brown and crinkled, and weigh from twelve to fifteen pounds.

The ripened cheese is also sold finely ground and put up in jars holding from one to two and a half pounds.

SWISS CHEESE, or SCHWEIZER KASE, as understood in this country, is another name for "Emmenthaler" (which see) or "Gruyère." In Switzerland, the original place of manufacture, it indicates a minor grade, being made of half-skimmed milk instead of the full-cream milk of Emmenthaler. The curd is also cut coarser and it is not cooked as firm, resulting in a softer, more quickly ripened product.

TOSCANO, or PECORINO TOSCANO, a sheep's milk cheese similar to *Romano* but not quite so hard and therefore used also as a table cheese.

WHEY CHEESE, a group title for a number of cheeses made from whey, as *Mysost.*

CHERRIES—a "Heart" variety

CHERIMOYA, the fruit of a small, sub-tropical tree, believed to be native to the mountainous regions of Peru and Ecuador, which flourishes in those countries and also in the hilly and elevated parts of Mexico, Central America, Jamaica, Hawaii, and elsewhere, and has been successfully introduced into southern California. It varies from the size of an average apple up to a weight of fifteen pounds. The pulp is white, juicy, and (in good specimens) of exceedingly fine flavor.

The best known types are the "finger-printed," cone-shaped to roundish, with depressions resembling finger-prints on an otherwise smooth surface; the "smooth," cone-shaped to roundish, showing "finger-prints," but faintly and without depression; the "tuberculate"—a very common form—heart-shaped and marked by wart-like tubercles; the "mammillate"—the protuberances suggesting nipples; and the "umbonate," or knobby, variety, more acid and with a comparatively thick skin.

It is probable that the cherimoya will in the near future become a popular fruit in this country as with scientific culture there seems to be no limit to its possible excellence, and—cut when fully developed but not ripe—it stands transportation well.

CHERRY, a fruit which has always been a home favorite in this country and one whose commercial harvest has steadily increased in late years.

There are two chief types of the cultivated fruit—the large, sweet, heart-shaped cherries—both light and dark colored—and the smaller, sour cherries. The sweet are divisible into the Hearts, with soft flesh, and the Bigarreaus, with firm, crisp flesh; and the sour into the light-colored, moderately sour Amarelles, and the dark, very sour Morellos. In between the sweet and sour kinds are the Dukes, smaller than the sweets, soft-fleshed, light-colored, and from slightly to markedly sour. Both sweet and sour are commercially canned—the sweet in California, and the sour chiefly in Michigan and New York. The sweet are packed unpitted, the pits giving the desired characteristic flavor. The sour are pitted. Both kinds are also dried to a limited extent.

The sweet cherry attains large size in California orchards. The highest canning grade calls for fruit about one inch in diameter.

The wild cherry is smaller and less fleshy than the cultivated, but in the best types is very sweet and often decidedly aromatic, the most noted variety being the black Marasca of Dalmatia.

In the forest regions of France, the wild cherry is an important item of the

Jacques Boyer

Cherry gatherers, French Pyrenees

local food supply. Large quantities are consumed fresh during the ripening season and the balance of the harvest is dried for winter use, in jams, etc., and in the form of "cherry soup"—which consists substantially of bread and water with a little butter and dried cherries for flavor. In the valley of the Rhine the schools often close when the cherry crop is ripe so that every member of the family may aid in its gathering.

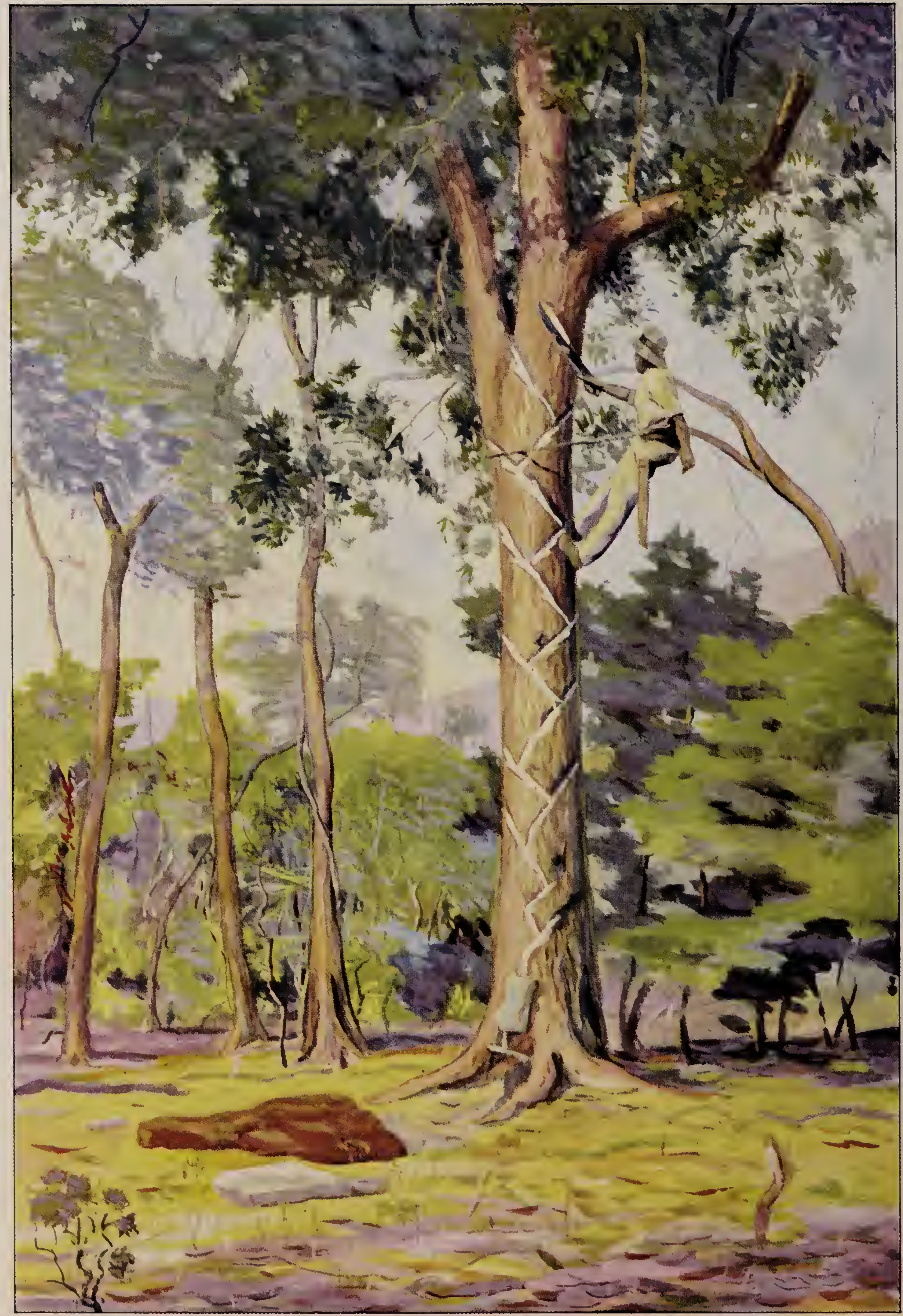
Recorded evidence does not go back far enough to say when wild cherries first became an object of the gardener's care. The early Romans were familiar with eight varieties, and quantities of cherry stones have been found in the lake dwellings of Switzerland.

CHERVIL, a highly esteemed, low-growing, aromatic garden-herb cultivated in all temperate climates and very popular in the South, its young leaves being used for seasoning soups, etc., and in salads. It resembles parsley, the Curled being even handsomer.

Parsnip Chervil, or Turnip-rooted chervil, is a South-European variety grown for its thick root, four to five inches long, its exterior grey to blackish, its flesh yellowish-white. It is a very desirable vegetable, the flesh being sweet and delicate, and almost floury.

For "Sweet chervil" (myrrh), a misnomer, see Sweet Cicely.

Chestnut burrs bursting



THE SAPODILLA TREE. Cutting the bark to obtain chicle.

CHESTNUT (see the second color-page facing 346), the seed of a tree which is found in several varieties in different parts of the world. It develops inside a prickly husk, generally two or three in each husk, ripening with the first frost.

The American chestnut is the choicest — it is usually smaller, but generally sweeter than the European, or "Spanish." The Japanese also averages larger than the American, and in sweetness may be classed between it and the Spanish. See also MARRON.

Chestnuts contain an appreciable quantity of protein, fat, and sugar to supplement the starch which is their chief component. The sugar content frequently reaches as high as 15%, the evaporation of the juice yielding a fine granular sugar. They should be well roasted, or steamed or boiled for a long time.

In mountainous districts of Europe where cereals cannot be raised, the chestnut takes the place of grain to a considerable extent. The harvest is one of the great events of the year on the slopes of the Apennines and Pyrenees—the gathering of the nuts being for three or four weeks the principal occupation of every mountain village. When all the trees have been stripped, the nuts are spread on frames of lattice-work and dried by a fire kept burning underneath. They are then ready for either immediate or later steaming or roasting or preparation in pudding form—the last-named, the original "polenta"—or to be ground into meal for the thickening of soups and for bread-making.

Chestnut flour is sold here also to a small circle of consumers.

Chinkapin chestnuts are the fruits of American dwarf varieties—varying from shrub to tree size. The sweetness of their meat finds them a ready market. They are small—from three-quarters of an inch to an inch in length—and inclined to be cylindrical in shape. They are borne singly, and ripen earlier.

CHEWING-GUM. The original chewing-gum was spruce-gum, obtained from several species of the spruce-tree. Later, refined paraffin-wax, variously flavored, took its place—only in its turn to give way to the chicle now almost universally employed as the chief ingredient.

Chicle is a gum which is obtained from the latex, or milky juice, secreted by the bark of *Achras sapota*, the tree which bears the sapodilla, one of the most delicious of tropical fruits. Tradition has it that the gum was at a very early date used by the Indians as a means of quenching their thirst.

Chicle was first commercially imported into this country as a substitute for rubber, but its peculiar suitability for

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Boiling down the chicle "milk"

chewing-gum has resulted in all available supplies being consumed by that very considerable industry.

The sapodilla-tree, known also as the "naseberry," is a handsome evergreen which reaches a height of fifty to sixty feet. It is found in every tropical region, but the countries of its origin—Mexico and Central America—are still the chief sources of chicle.

The trees are "tapped" during the rainy season. The "chiclero" slashes the bark diagonally criss-cross the full height of the main trunk, and the bluish-white, viscous "milk" trickles down the channels thus made for it into the canvas bag supported in place at the foot of the tree. Several quarts may be yielded before the flow stops, but the tree will not be ripe for tapping again for several years. The chiclero collects the exuded milk daily, going the rounds with a large canvas sack, and carries it into the "camp" where it is boiled down and kneaded until all the milky appearance is lost. It is then molded into large, rough blocks, brownish-cream in color—the "crude chicle" of commerce.

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Barges of block chicle

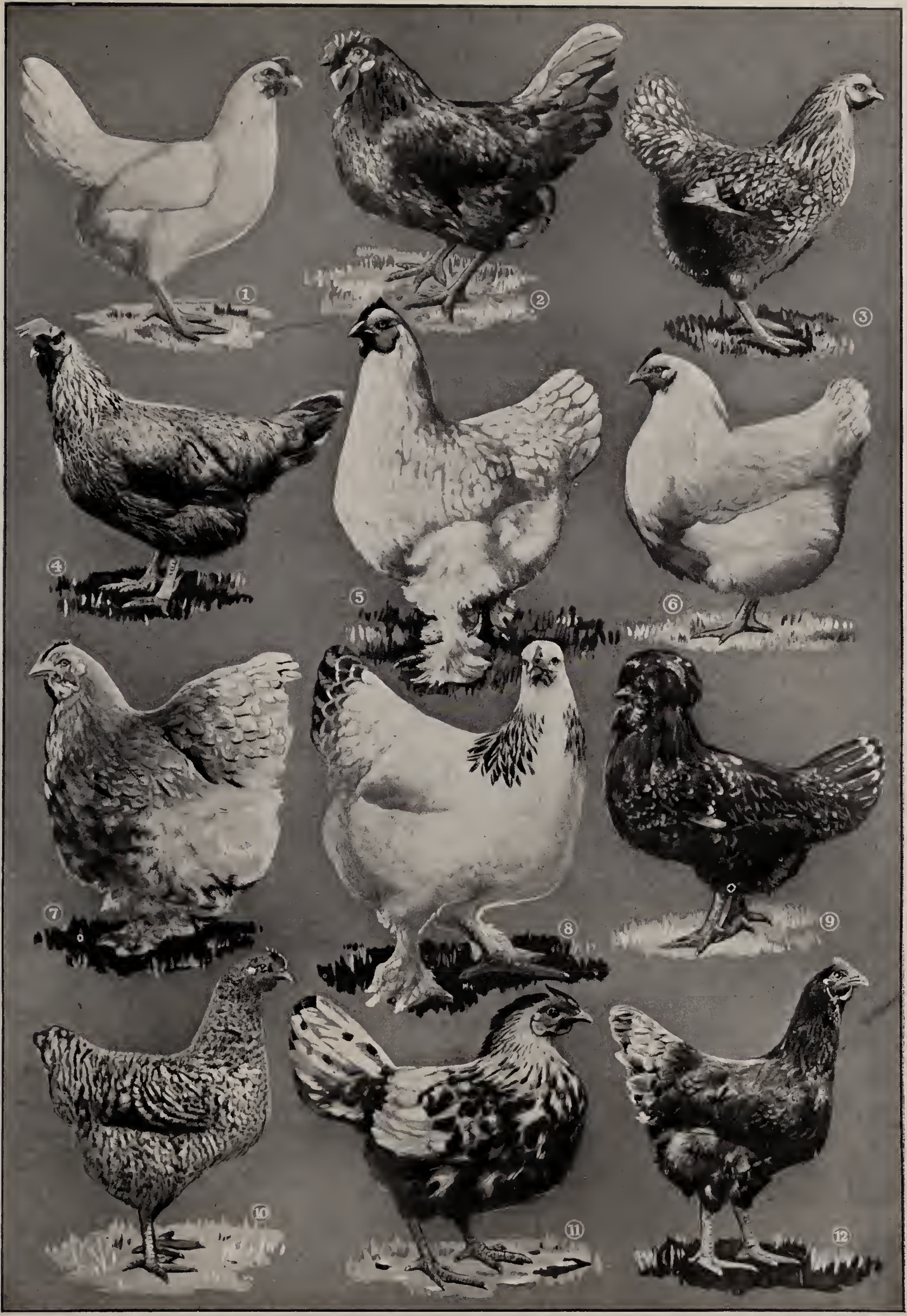
In the chewing-gum factory, the blocks are broken and ground to a coarse meal, then reduced again to a sirup and thoroughly refined and sterilized. The chicle is now ready for the cooking, sweetening, and flavoring which convert it into the chewing-gum of which such enormous quantities are annually sold.

The moderate use of chewing-gum aids digestion by stimulating the secretion of saliva. It also makes specifically for tooth-preservation, as the increased flow of saliva—together with the mechanical action of chewing—moistens, cools, and cleanses the mouth. These last points have won commendation for its use in many serious illnesses, especially among patients of tender years. It should not, under normal circumstances, be used before a meal, and excessive chewing should be avoided as a waste of nervous energy.

Facing page 99 is a color-page of the sapodilla-tree slashed for chicle. See also the article on the Sapodilla.

CHICKEN. The word "chicken" formerly meant "young fowl," but usage has applied it to fowls of all ages killed for food, young birds being designated as "spring chickens," "broilers," etc.

The fowl has been reared for food for so many centuries that its first conversion from its wild ancestors is lost in tradition. Poultry raising has been practiced in



TWELVE WELL-KNOWN VARIETIES OF CHICKENS

1. White Leghorn
2. Black Minorca
3. Silver Wyandotte
4. Dorking
5. White Langshan
6. White Orpington
7. Buff Cochin
8. Light Brahma
9. Black Houdan
10. Barred Plymouth Rock
11. Silver-spangled Hamburg
12. Rhode Island Red

Europe from the earliest recorded times, and domestic fowl were plentiful in Great Britain long before the Roman invasion.

The best known types of chickens especially suitable for raising for table purposes are the many varieties of the Brahma (very large birds), Cochin, Langshan, Dorking, Orpington, Plymouth Rock, Wyandotte, Rhode Island Red, and Houdan. Representative examples of all of these are shown on the page facing 101.

To the general rules for selection given in the article on POULTRY (which see) may be added that thick scales on the legs, thin necks, and dark-colored thighs are signs of toughness in chickens. A good table bird should have a large, full breast and, at other points also, a large proportion of meat to the size of the bones—long, thin legs and wings are especially undesirable.

Chickens should be starved for at least twenty-four hours before killing. Those that have been killed with partially filled crops should be avoided, as the disintegration of the grain quickly discolors the flesh. In common with all other meat, they are more tender if held for two days or longer before cooking.

Dry-picked chickens will keep longer than "scalded" birds—those immersed in hot water before plucking. The plucking should be performed immediately after killing.

Capons (cocks castrated when young) are considered a little choicer—more tender and of higher flavor—than ordinary fowls. They can be distinguished by the pale and shriveled appearance of the combs, the undeveloped condition of the spurs, and especially round, well-fleshed bodies.

Poulards, or spayed hens, are in France considered particularly desirable also, but in this country they are not rated as much, if any, better than first-class pullets.

Milk-fed chickens are those fattened for market on grains, oatmeal, bread, etc., together with buttermilk or skim-milk. Properly regulated, the diet produces birds with very delicate flesh. Many large poultry raisers market no other kind.

In England the fattening of chickens for market has long been a separate specialized industry, and in recent years a similar system has established itself here. The "milk-feeders," or "fatters," buy the birds ready grown, and systematically feed them up to the highest possible point with a plentiful grain and milk diet—first, and perhaps exclusively, by natural temptation of their appetites but finally in some cases by pumping a special mixture into their crops night and morning until the desired rotundity is obtained.

A "squab chicken" should average three-quarters to 1¼ pounds in weight; a "broiler" 1½ to two; one to "sauter," or for frying, about 2½ pounds; for "roasting" three pounds or so; and for fricassee, four pounds. Numerous thousands of "squab chickens" are White Leghorn cockerels marketed by "egg-farms" as soon as they are large enough to be worth eating.

The meat of a well fattened chicken of young or medium age has about the same nutritive value as beef, but it is considered easier of digestion and therefore especially suitable for invalids and convalescents.

American custom generally discards various parts of the bird which are considered of value in some other countries. The head of the chicken, for example, is in Europe often left on the bird when it is cooked, as the brain is accounted a tit-bit; blanched cocks' combs and wattles are rated by French cooks as a delicacy worthy of preparation as a separate dish and especially desirable for garnishing; and the feet, skinned and dressed, are used for making broths.

CHICKEN HALIBUT, a term generally applied to young Halibut (which see).

CHICK-PEA, or Garbanzo, the fruit of a pea-like plant, probably the "pulse" of the ancient Hebrews, growing one or two in a pod, larger than the common pea, roundish, flattened on two sides, wrinkled when dry, and with a projection of the radicle which gives it resemblance to a miniature ram's head. It is widely consumed, both ripe and unripe, in Mediterranean countries—it forms the basis of the Olla Podrida of Spain—and is well known and liked in California, Mexico, and Spanish-American countries generally, where it is eaten in many ways—boiled, roasted, in soups, and coated with sugar as a confection. There are a number of varieties—"white," black, and red. The "white" are the best.

CHICLE. See Chewing-gum.

CHICORY. There are two chief divisions of the food uses of plants of the chicory (*Cichorium*) genus: (1) the preparation of the roots as chicory, the coffee addition; (2) the consumption of the leaves and roots as vegetables, and the leaves also in salads. They are considered below under separate subheads.

Chicory, the coffee addition. For this purpose, cultivation is of large-rooted varieties of *C. intybus.* The best known are the Brunswick, with deeply cut leaves of spreading habit; the somewhat similar Palingkop; and the Magdeburg, with undivided, erect leaves. In manufacture, their roots—which attain a length of ten to fourteen inches with a diameter of about two inches below the neck—are sliced and kiln-dried, then roasted with a little oil and ground into different sizes, down to "fine pulverized."

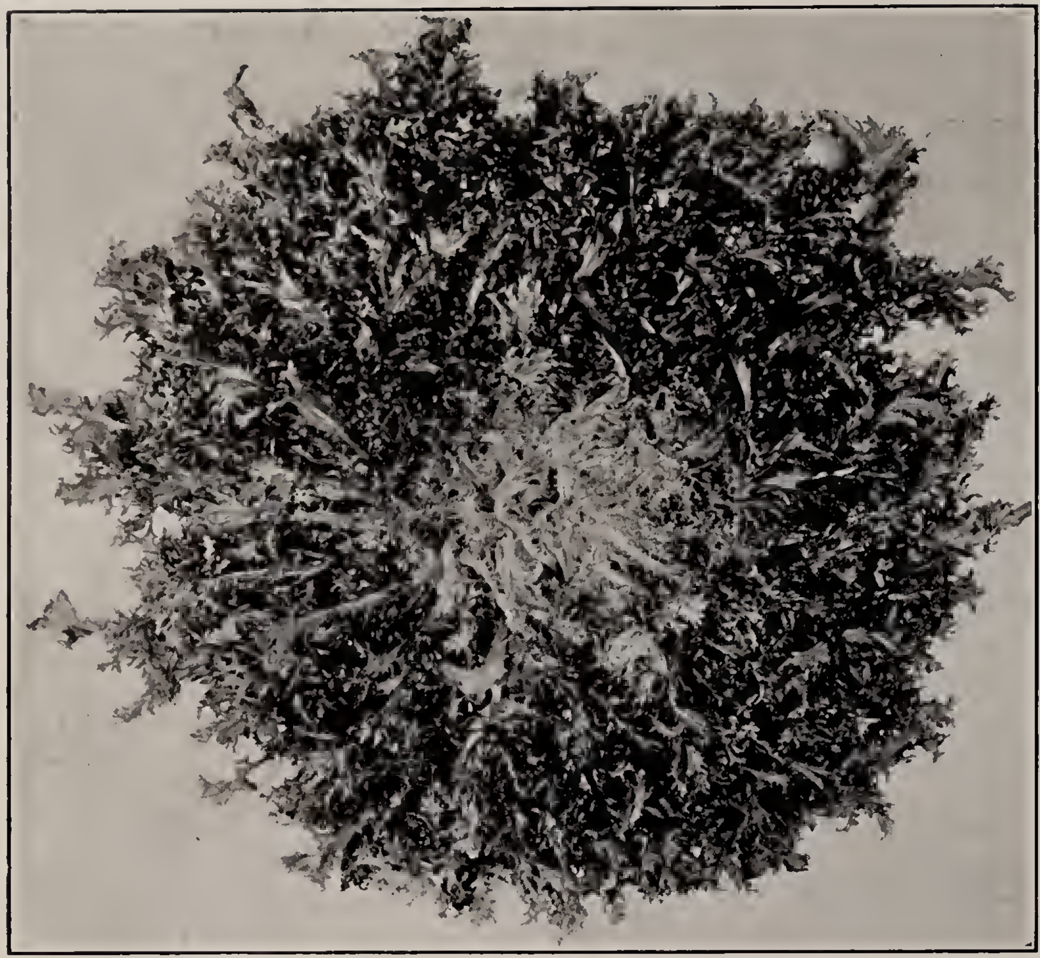
When raw, the root is white and fleshy, but the roasted product resembles roasted coffee. It contains neither caffein nor tannin, but it has a bitter principle and a volatile oil, and the roasting brings out an aroma and develops a sugar content. Added to coffee in the proportion of an ounce to the pound, it makes it "go further" by deepening the color and adding to the "body" of the beverage.

Roasted chicory is highly absorbent of moisture, and should therefore be always kept in closed bottles or canisters. (See also reference in the article on Coffee.)

Chicory, endive, and escarole, as vegetables and salads. For a correct understanding of this group one must familiarize himself with two species of the chicory genus under general cultivation—*C. intybus* (the species described under the preceding subhead), native to Europe, styled Chicory by botanists and lexicographers; and *C. endivia,* styled Endive, native to the East Indies (or perhaps, as some believe, to Egypt).

The Common variety of Chicory has become naturalized and runs wild throughout the eastern United States as a tall, strong-rooted, hardy, and persistent perennial weed, often six feet tall, with bare-looking top and attractive, large, light blue flowers. Endives are more tender plants, annual or biennial, found only under cultivation.

The two titles of "Chicory" and "Endive" as to-day employed to designate the cut plants when sold for vegetables and salads, constitute, however, a complete reversal by colloquial and market usage of the foregoing definitions.



''Chicory'' (curly endive)—greatly reduced

The common salad ''chicory'' (or ''curly chicory'') with narrow, curled, feathery leaves, and the broad-leaved ''escarole,'' are of the *Endive* species. This ''chicory'' was formerly known as ''endive,'' or ''curly endive''; and ''escarole'' also as ''broad-leaved (or Batavian) endive.''

The winter salad and vegetable ''endive'' (or ''French endive,'' or ''Witloof'') with close, often tight, blanched heads, is of the *Chicory* species.

The Chicory species also furnishes the winter salad ''Barbe de Capucin'' (or ''monk's beard'').

The salad ''chicory'' is grown both for summer and winter markets, usually blanched more or less in cultivation. It is fairly well liked here for eating raw, but few Americans know that it is also an especially well-flavored cooked vegetable.

Escarole—the leaves generally twisted and waved and with thick, white midribs—is more highly considered as a winter than a summer salad but it is raised for both seasons, its natural tendency to blanched centers being accentuated by gardeners.

Barbe de Capucin and ''endive'' (or French endive, or Witloof) leaves and heads can be obtained from plants of any variety of chicory (*C. intybus*) if they have not been permitted to form flower-stems and if they show good root-growth, but ''endive'' is best produced from the Magdeburg Large-rooted (some of its types known specifically as ''Witloof'').

''Escarole'' (broad-leaved endive)—greatly reduced

For Barbe de Capucin, plants are taken up before frost. The leaves are then trimmed off about one-half inch above the neck, and the roots are replanted in a moderately warm, dark cellar, set *horizontally* in sloping beds of moderately moist soil, the necks of the plants clear of the soil. In three or four weeks the first crop of delicate white leaves, six to ten inches long, are ready for gathering, to be followed by another—perhaps several—crops.

"Endive" (about one-half average length)

For "endive" it is necessary to have roots with a diameter of from 1½ to two inches below the neck and carefully selected for singleness of both root and head, and good breadth of leaves. The leaves are then cut off about 1½ inches above the neck, and the roots cut down to nine or ten inches in length and cleaned by pinching out any secondary shoots that appear on the sides. The roots thus prepared are set in a trench sixteen to eighteen inches deep, the trench then filled with finely powdered soil, and manure piled on top. In a month's time—before the heads have made their way up to the manure—the plants are dug up and the newly developed white heads are cut off with a piece of the root-neck attached.

"Endive" consists, typically, of a number of thick, creamy-white leaves from four to six inches in length and one to two inches in width, pressed close together and generally tapering to a point. It is eaten both raw and cooked. For salad purposes it should be very crisp as otherwise it is liable to be too bitter.

By more general cultivation of the several varieties of *C. intybus* we could considerably increase the diversity of vegetables and salads. The ordinary Common chicory is in other countries widely grown for its young garden leaves, eaten both green and blanched, chiefly in salads, but also as greens. Those around its base resemble dandelion leaves. It is of very easy culture—it may be sown thick so that the leaves crowd each other, and cut with a knife or sickle as needed—the plants supplying several cuttings during the season. If to be used as greens, the leaves should be boiled in two waters to remove their bitterness.

Specially developed types, other than the large-rooted varieties already referred to, include Red Italian, Broad-leaved, and Curled-leaved.

Red Italian is distinguished by the variegations on its leaves, which on blanching appear in bright red, making a very showy salad-plant.

Broad-leaved resembles Escarole, or Broad-leaved endive.

Curled-leaved—finely cut, slashed, and curled—resembles Curly endive.

All types and varieties of endive and chicory require quick growth, or toughness and bitterness may be the penalty.

Young chicory roots are pleasing as a vegetable dish, prepared in any way employed for other root vegetables, but they are poor in nutritive value as their carbohydrate content is chiefly of the only slightly assimilable inulin.

CHILI (Chilies), a general name adopted from the Mexican for the pods of several species of small-fruited, specially pungent CAPSICUMS (which see) put up, both ripe and unripe, as a separate pickle or added to "mixed pickles." They are largely consumed in hot countries. The two Mexican dishes containing them which are best known here are CHILI CON CARNE (see following) and chicken tamale (see TAMALE). The word is also used as a group name for many articles highly seasoned, either with whole capsicums or cayenne pepper. See also references under *Cayenne pepper* in the article on PEPPER.

CHILI CON CARNE, a Mexican dish of popular preparation in the southwest, and obtainable elsewhere in canned form. Its chief components are beef, beans, chilies, garlic, and spices.

CHINESE ARTICHOKE. See JAPANESE ARTICHOKE.

CHINESE CABBAGE. See PAKCHOI and PETSAI.

CHINESE MUSTARD (*Brassica juncea*), a plant grown for its tufts of succulent root-leaves, which make good greens. It is popular in Chinese markets, and is occasionally cultivated in American kitchen-gardens. The Broad-leaved is one of the best of its numerous varieties.

Tuberous-rooted Chinese Mustard is of a different species (*B. napiformis*). The roots resemble conical white turnips in both appearance and flavor.

CHINESE WATERMELON, or Preserving Melon, a large, oblong fruit, nine to eighteen inches in length, with waxy-white, hairy skin, firm white flesh, and cucumber-style seeds. It is used chiefly in preserves.

CHINKAPIN. See the CHESTNUT article.

CHIVES, or Cives, plants of a species allied to the onion and leek, cultivated principally for their leaves, which grow in thick tufts, six to eight inches high, resembling grass but hollow like onion leaves. They thrive easily in the home garden and can be cut freely, for new leaves quickly replace those taken. They are a good substitute for onions, especially in soups, stews, and salads.

CHLOROPHYLL, the natural pigment which imparts the green color to leaves and plants. Sunlight is necessary for its action —hence, the white color of even the greenest varieties of asparagus, etc., when "blanched" —i.e., when the light has been shut out by banking or otherwise.

A tuft of chives

CHOCOLATE. See Cocoa and Chocolate.

CHOP. (1) As applied to meat, generally mutton, lamb, or pork, it is a cut either from the rack or the loin (see reference on page 341 in the article on Mutton). (2) As commercially applied to Chinese tea, etc., it signifies either the grade—"first chop," then signifying "first quality"—or a special brand or lot. In its true and original Oriental significance, it is a custom-house seal or mark.

CHOPA (*Lagodon rhomboides*), **or Chopa Spina, or Bream, or "Sailor's choice,"** a small, highly prized pan-fish of our Atlantic coast, greenish above and gold-striped silvery-blue on the sides. Several tropical fishes bear the same title.

CHOP-SUEY, a thick stew typical of the Chinese restaurant in the United States. The ingredients vary greatly in different establishments, among the many possibilities being chicken and chicken trimmings, other meats or fish of any kind, bamboo shoots, bean sprouts, mushrooms, rice, noodles, ginger, etc. It is generally styled according to its chief ingredient—as chicken chop-suey or lobster chop-suey.

CHOW-CHOW, a mixture of pickles of various sorts, especially mixed vegetables, in mustard. Also, and originally, a Chinese sweetmeat consisting of pieces of orange-peel, ginger, and numerous other articles put up in sirup.

CHOWDER, a dish composed of fish, pork, onions, biscuit, etc., stewed together, popular in all parts of the country, but especially appreciated on the New-England coast, where "clam chowder" and "fish chowder" parties are very common. In New England, cider is sometimes added to the stew. The name comes from the coast of France, where the *chaudière* is a large cauldron in which the fisherfolk cook a very similar mixture. Chowder is now sold canned.

CHUB, a title applied to many medium-size and small fish, among the best of them being the Lafayette (which see) and the "Bermuda chub," or "rudder-fish"—also of our southern waters, and good both as game and food. Its average weight is two pounds or a little more, but it may reach nine pounds. It takes its name "rudder-fish" from its habit of following ships, often for considerable distances, presumably to feed on their garbage and other waste.

CHUB MACKEREL. See Mackerel.

CHUFAS, or Earth Almonds, or Rush Nuts, the small, hard, tuberous roots—cylindrical, and from one-half to three-quarters of an inch long—of a grass-like plant which grows freely in the southern states. They rank high in nutrient qualities, and their nutty flavor makes them equally acceptable raw and baked, fresh and dried.

CHUPATTY, or Chapati, an unleavened cake of coarse wheat-flour, shaped flat by hand, and baked on a griddle—the staple native bread of upper India.

CHUTNEY, a pickle originally made in India, that country still being the source of a number of the finest grades. It is generally based on mangoes, with the addition of many other articles, such as raisins, tamarinds, limes, ginger, chilies, and spices. There are two chief types—sweet and sour. The Ceylon product is frequently flavored with garlic. Chutneys are most suitably served with curries, stews, and sausages.

Domestic products include apple chutney, cucumber chutney, tomato chutney, and similar types, the general method being to employ sweet fruits, adding acid flavoring (as from lemons or tamarinds), and seasoning with chilies, etc. Green peaches as the character ingredient, make the best imitation of Indian mango chutney.

CIDER, the juice of apples, both fermented and unfermented. "Sweet cider" may be either unfermented or with fermentation checked at an early stage so as to leave unchanged a considerable amount of the sugar in the juice. "Hard cider" is that in which fermentation has continued until all the sugar has been changed into alcohol (and carbon dioxide) and is consequently sour to the taste. Unfermented cider is frequently styled "apple juice" to distinguish it from fermented "sweet cider."

Cider is obtained by grinding the fruit to a pulp, and then pressing the pulp to extract its juice. A dark liquid is obtained which, unless sterilized for "apple juice," will at once begin to work and in a few days becomes fermented "sweet cider." Great care is necessary to preserve it in that condition or it quickly develops into "hard cider."

The flavor and general quality of any and all of these depend both on the fruit employed and the skill in preparation. A palatable beverage may be made from

International

Apples for cider. A scene in a country district of Germany miscellaneous "windfalls" and off-size unmarketable fruits, but a really fine product can be obtained only by the use of prime apples—preferably of blended varieties unless special cider types are grown.

Fermented sweet cider contains from 2% to 3% alcohol and also malic and acetic acids, sugar salts, and extractives. Hard cider may show 8% or more alcohol.

To keep new cider from fermentation, powdered wood-charcoal in the ratio of a pint to a barrel is recommended. Place it in a cotton bag and suspend it in the barrel.

Cider should be stored in a cool place. Bulk cider should be kept especially cool, as otherwise it is apt to sour after being tapped. At a temperature of about 75° Fahr., it will gradually become vinegar.

Cider for bottling should be of good quality, sound and piquant, and at least twelve months old. Before bottling, it should be examined to see if it is clear and sparkling. If not, it should be clarified and left for a fortnight. The bung should be taken out of the cask the night before the bottling day, and the filled bottles should be held a day before being corked down—these precautions are necessary to save the bottles from being burst by pressure. Only the best corks or seals should be used.

When cider is wanted for immediate use, or for consumption during the cooler portion of the year, the bottles may be corked within two or three hours after being filled, but in summer, or for long keeping, this practice is inadmissible.

The use of preservatives in cider made for beverage purposes is undesirable—and is unnecessary if it is carefully made and barreled or bottled, and is stored under favorable conditions.

CIDER VINEGAR. See the general article on Vinegar.

CINNAMON (see the color-page opposite 110), the inner bark of young wood of a cinnamon-tree. Ceylon cinnamon is obtained from *Cinnamomum zeylanicum,* native to Ceylon, and is chiefly of Ceylonese cultivation. Cassia cinnamon is from *C. cassia,* the principal East-Indian and Chinese type. Both are sold in quills and ground, their fragrant, aromatic flavor making them a popular adjunct in cookery and confectionery.

Both were in earlier days commodities of great value. Ceylon cinnamon is that referred to in the general article on Spices as (with the nutmeg and the clove) the cause of much human bloodshed. It was first carried to the world's markets by Arabs, who kept its source a close secret

Brown Bros.

Skinning the cinnamon sticks, Ceylon

for a number of centuries and contrived to discourage possible investigators by stories of fabulous monsters inhabiting the country from which they were supposed to obtain it. That the tree grew wild in Ceylon was not generally known until the fourteenth century, in spite of the fact that the spice had been continuously in use since the early days of Israel, Greece, and Rome.

Ceylon cinnamon is of a pale yellowish-brown color, and in quill form is generally of lighter, cleaner, and smoother appearance than Cassia. The quills are also usually thinner and more tightly rolled. These distinctions, however, are not absolute, for there are many grades of Cassia. One specific trade difference is that Cassia quills are single, whereas in Ceylon the smaller quills are enclosed in the larger. In the ground spice it is frequently difficult to distinguish between good grades of the two barks.

Cassia cinnamon was until recent years decried as an inferior imitation, principally because the greater part of the supply consisted of the inferior and poorly prepared China product. It has, however, just as good title to the general name of "cinnamon" as the Ceylon kind, and (as the result of the fine quality now exported from French Cochin-China and the Dutch East Indies) it is to-day given the prefer-

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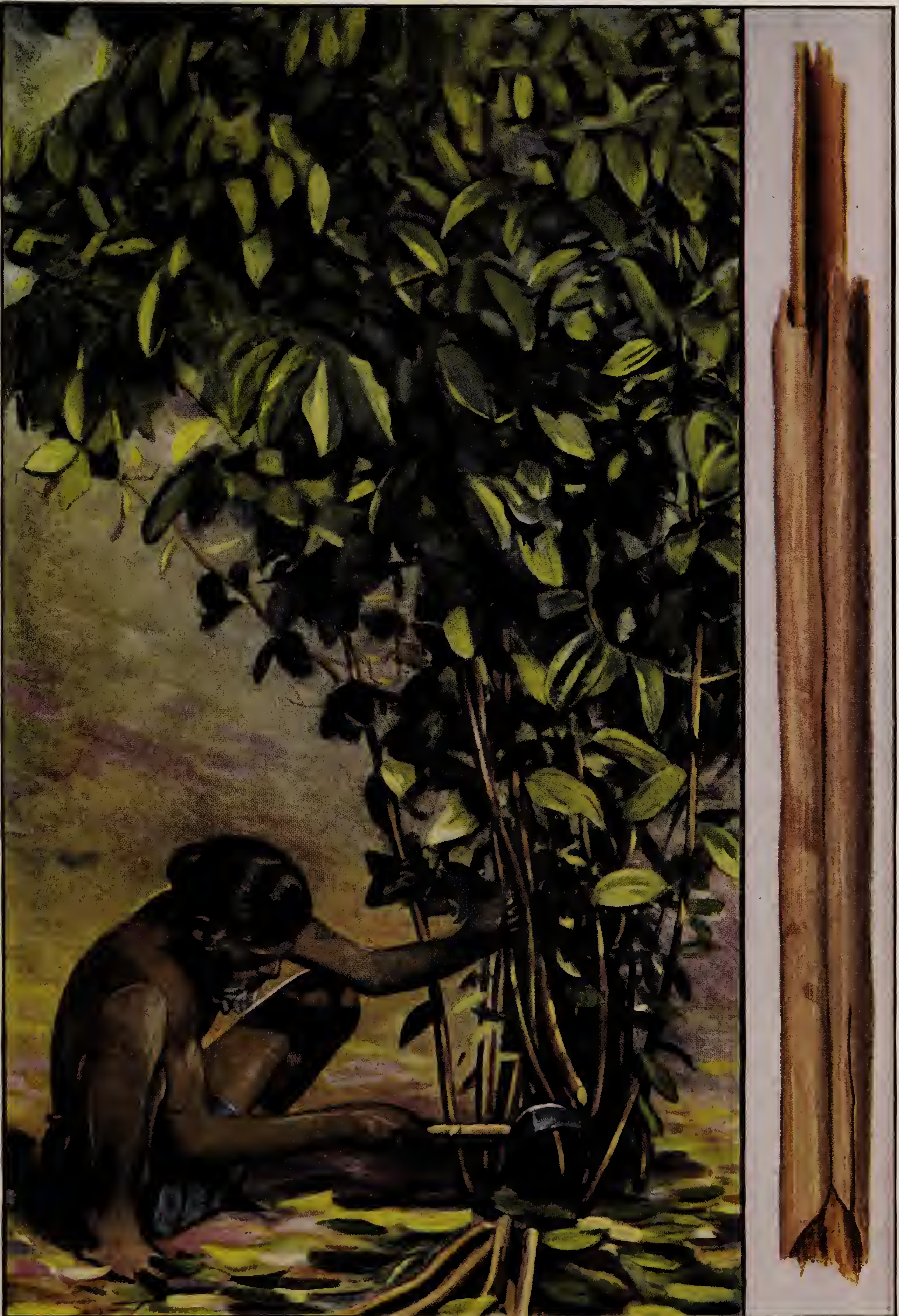
Forming the cinnamon quills, Ceylon



CUTTING CINNAMON STICKS

ence in the United States and in several European countries because its flavor is more pronounced and more lasting—the Ceylon is milder and so much more volatile that it loses readily on exposure to the air. The demand for Ceylon cinnamon has indeed so lessened that commercial interests are urging the cultivation of Cassia in Ceylon in order to maintain the island's position in the trade. In analytical circles the Ceylon variety is still conservatively described as "True cinnamon" instead of by the commercial term "Ceylon cinnamon."

The lower grades of Cassia are cheaper than any of the Ceylon generally marketed, but the best qualities are more expensive. The four main grades are those known as *Saigon,* or Saigan, from French Cochin-China (the choicest), *Corintje* and *Batavia* of the Dutch East Indies, and *China* (the cheapest). Saigon cassia is generally used for blending with lower qualities.

In its wild state the Ceylon cinnamon-tree grows to a height of twenty to thirty feet, with a trunk that may attain a foot in diameter. In cultivation it is kept down to a slender sapling-style of ten feet or less.

The preparation of cinnamon is simple. Shoots or branches of about an inch in thickness are cut when the bark is "ripe"—i.e., when a trial shows that it separates readily from the wood—and trimmed to a length of about four feet. Then come the stripping and peeling. The bark is slit down two sides with a sharp-pointed, slightly hooked knife, then—after a little gentle prying—is pulled off in two long strips. The strips are immediately put back on the wood to preserve their shape and set aside for three to six hours in order to permit the bark to ferment. Next follows the peeling. Each strip is placed over a round stick, and the thin outer skin is scraped off, exposing the pale yellow inner-bark,—which is the "cinnamon" itself. The strips are now permitted to dry for half an hour or so and are then formed into the "quills" in which they are marketed,—the smaller pieces (in Ceylon cinnamon) set inside the larger, contraction as they dry tightening them into almost solid rods.

Cisco of Lake Tippecanoe

CISCO, the group-title for a genus of fresh-water fishes of the Great Lakes region. The most important as food, because of its great abundance, is the LAKE HERRING (which see). The choicest is the somewhat smaller "cisco of Lake Tippecanoe" (*Argyrosomus sisco*)—so named because it was first described as of Lake Tippecanoe, Indiana—which frequents several small deep-water lakes.

CITRANGE, a new fruit produced by crossing the common sweet orange and the trifoliate orange—the latter a very ornamental semi-hardy tree, but with inedible fruit, used by some orchardists as stock upon which to bud fruit-oranges.

The citrange resembles an orange in general characteristics but is more tart. It varies greatly in size and appearance, from a small, thin-skinned, red-orange fruit, 1½ to two inches in diameter, to a large fruit of variable color weighing a pound or more. Some have fuzzy peels and greenish pulp. Several kinds are excellent for making summer beverages and for cooking.

CITRIC ACID, a crystalline, white, sour compound, obtained chiefly from the juice of lemons and limes, and other citrus fruits. It is present also in a majority of other acidulous fruits, such as currants and cranberries, and in some tubers. Considerable quantities are obtained by the fermentation of glucose. A gallon of lemon juice will yield from one-third to a little more than one-half pound of the crystallized acid. As noted in the articles on the GRAPEFRUIT, LEMON JUICE, and ORANGE, the citric acid of fruits commonly becomes alkaline by oxidation in the digestive system.

CITRON, a sub-tropical fruit, borne by a small, evergreen tree, cultivated chiefly for its thick, spongy rind, which in glacé, or candied, form is popular for use in cakes and preserves. It is also employed in the making of fruit sirups, etc.

There are many varieties of the fruit, the largest types attaining a length of nine inches and weighing up to twenty pounds. It is generally warty and furrowed, and greenish-yellow, with pulp similar in flavor to that of a lemon but less acid. A small quantity is produced in California but the main market supply is of the imported ''Leghorn citron''—grown, cut up, and barreled in brine in Corsica and Sardinia and shipped thence to Leghorn. From the latter place it may be shipped out still in brine or may be boiled until tender, soaked in slightly sweetened water in order to extract some of the salt, and then candied—the process being much the same as for CANDIED FRUIT (which see).

Large quantities are imported into the United States in brine, the candying being done here.

For ''drained citron,'' a cheaper grade than ''candied,'' or ''glacé,'' but equally good for preserves, the last corn-sirup immersion is omitted.

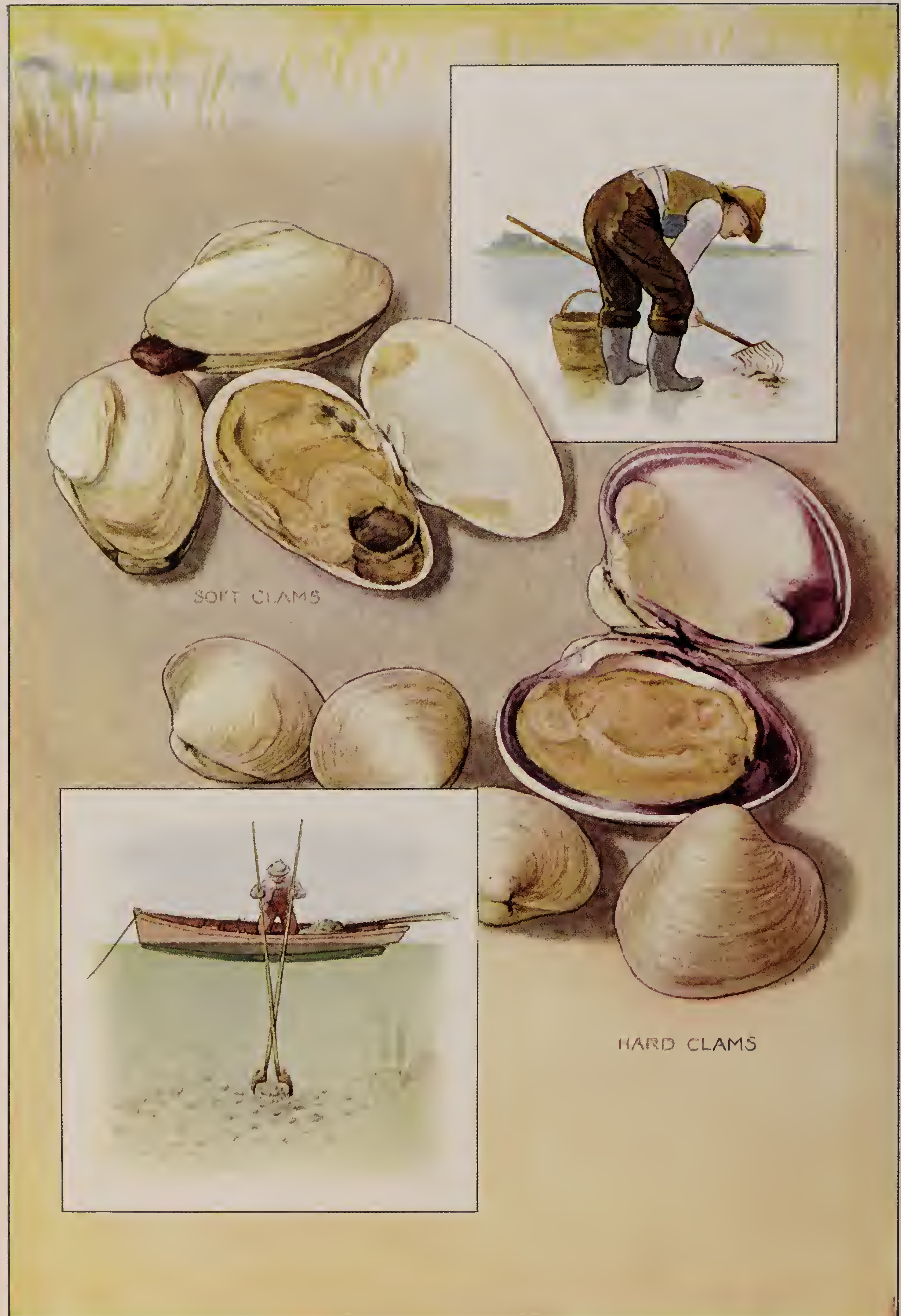
''Crystallized citron'' is the same as ''drained'' except that the peels are dried in cup style and therefore show a sediment of sugar in the cup. Unless sold at a lower price, this style is the least desirable, as sugar is cheaper than citron!

The unripe fruit of the ungrafted citron-tree—a small greenish-yellow fruit—is the Etrog, the ''citron of the Law'' used by many Jewish communities in the ceremonies during the Feast of the Tabernacles. It is imported chiefly from Palestine and Corfu.

CITRON-MELON, a fruit of the watermelon species and resembling the watermelon in the general exterior appearance of its variegated rind, but smaller and nearly round. It is not edible raw, its chief use being as a base for preserves after boiling in sirup strongly flavored with lemon or ginger or both.

CITRUS, a genus of plants which produce a great number of useful fruits. It includes the ordinary sweet orange, and kindred species such as the King orange, mandarins and tangerines, the satsuma, and the sour (or Seville, or Bigarade) orange; the CITRANGE, the CITRON, the GRAPEFRUIT, the LEMON, and the LIME, the last five of which are treated under their own heads, and those preceding under ORANGE.

CLABBER, or Bonnyclabber. See references in *Sour milk* in the article on MILK and in *Cottage cheese* in the article on CHEESE.



Tonging for Hard Clams

Digging Soft Clams

CLAM, the most common American shellfish, eaten fresh in enormous quantities and also extensively consumed in canned form, both whole and minced, especially in the West. Its great popularity has depleted the originally bountiful natural supply of our Atlantic coast-line and has resulted in the development of extensive "clam farms," seeded and tended on suitable tidal mud-flats. "Seed clams" are small clams obtained from both natural and farm beds.

Clams embedded in the mud—as exposed by digging

The hard clam, or round clam, or little neck clam,—called "quohaug" in some parts of the East and "poorquaw" in Nantucket,—is the variety generally offered in the East. The small, or young, clam is the more tender and in most demand for eat-

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Digging clams at low tide

ing raw, the larger being generally used for broths and chowders. Where quality is paramount, the hard part of the large clam is cut off and discarded.

The term "little neck," correctly used, refers to the short neck of the hard clam, the soft clam having a long distendible neck.

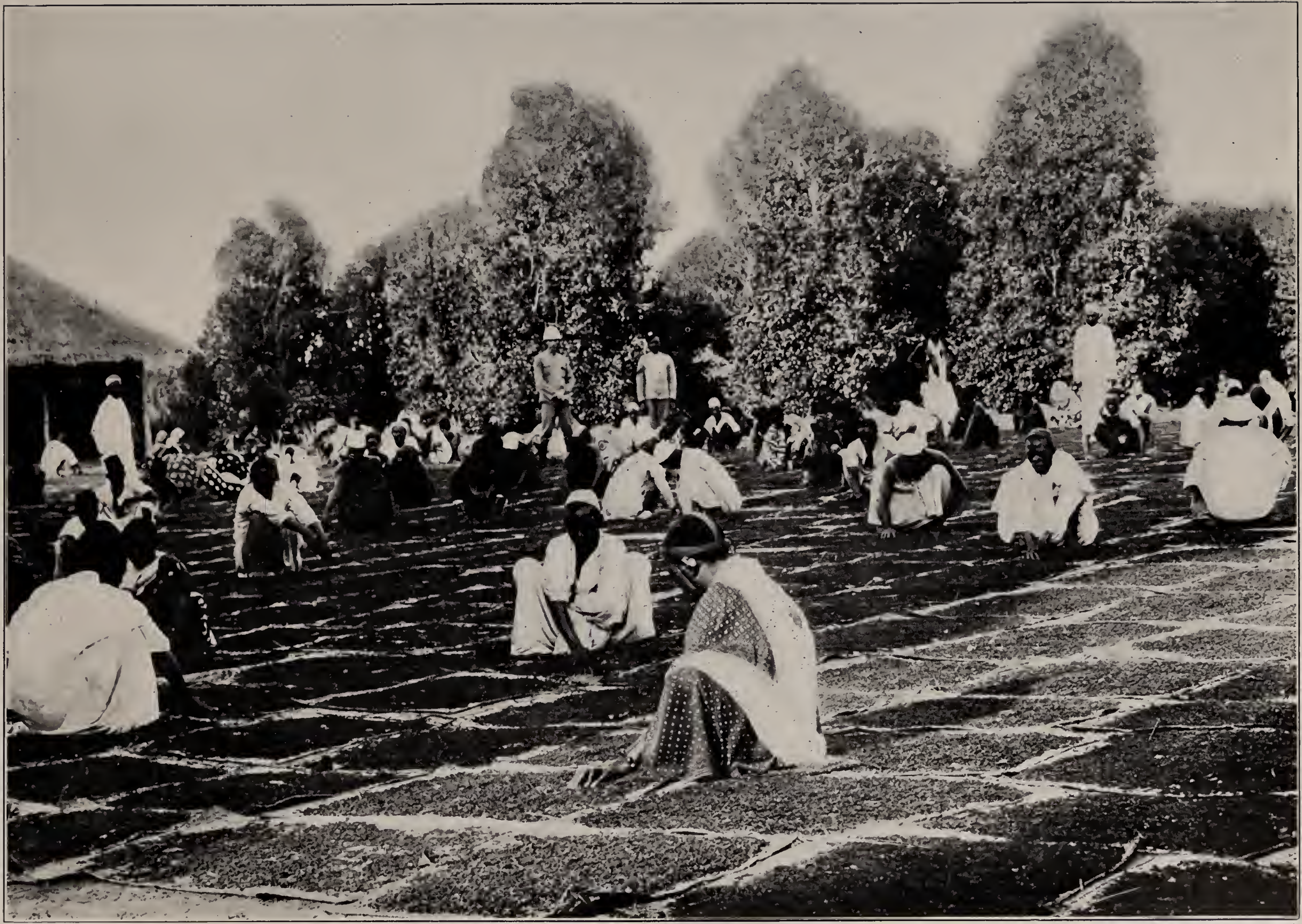
Soft clams, or "soft shell clams," or "long clams"—also of the East—are further distinguished by shells which are thinner, flatter, and less round. They are used in a similar diversity of ways—on the shell, broiled, fried, stewed, and steamed. They were originally the most important as the standard clam of clambake and chowder. Small inferior grades are dried and strung on cords to be sold at a low price by the "bunch" for soups, etc.

Gathering clams in Yokohama harbor

The "razor clam" of the Pacific Coast—extraordinarily abundant along the beaches and tide flats of Puget Sound—is a much larger creature of entirely different shape, resembling a closed razor—of the old type—not a safety razor! For canning it is generally minced because of its size and the trimming required.

CLOUDBERRY, the delicious, round, soft, red or yellowish fruit—somewhat of raspberry style—abundantly borne on a creeping plant common in sub-arctic and arctic regions of both hemispheres, and found as far south as northern parts of New England. It is of high antiscorbutic value, both fresh and canned.

CLOVES (see the color-page facing 348), widely used for flavoring desserts and confectionery, and medicinally, are the dried flower-buds of the clove-tree. As plucked, they are reddish, but this changes to the familiar dark brown in the process of dry-



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Drying cloves in the Moluccas

ing, performed either by the smoke of wood fires or by exposure to the sun. They contain about 18% of their characteristic volatile oil.

The tree, a handsome evergreen, grows to a height of forty feet, bears its developed clove buds in its seventh year, and gives two crops annually, increasing its productiveness up to an age of nearly a hundred years.

The clove industry was for many centuries confined to very narrow limits. A few islands of the Molucca group furnished the world's supply up to the beginning of the seventeenth century; then the Dutch, having driven the Portuguese out of the "Spice Islands," tried to perfect their monopoly by destroying every clove-tree except those on the single Island of Amboyna.

Later, the Island of Zanzibar became an important producer, but for a number of years following 1872 it was again unproductive as the result of a cyclone which uprooted nearly all of the mature fruit-bearing trees.

An interesting result of the cyclone was the release from the Dutch government warehouses at Amboyna of surplus cloves that had been accumulating there for generations—no sales having been permitted except when the bids reached the prices set by the government. The markings on some of the barrels received at that time in New York showed that they belonged to the surplus of crops reaching back nearly a century—some of the barrels were ready to fall to pieces, but the cloves were in excellent condition.

The principal sources of supply today are the Islands of Zanzibar and Pemba (British East Africa) and the East Indies (both Dutch and British). The tree is also cultivated in the West Indies and other tropical regions.

Oil of cloves is a convenient form for household purposes.

See also the general article on Spices.

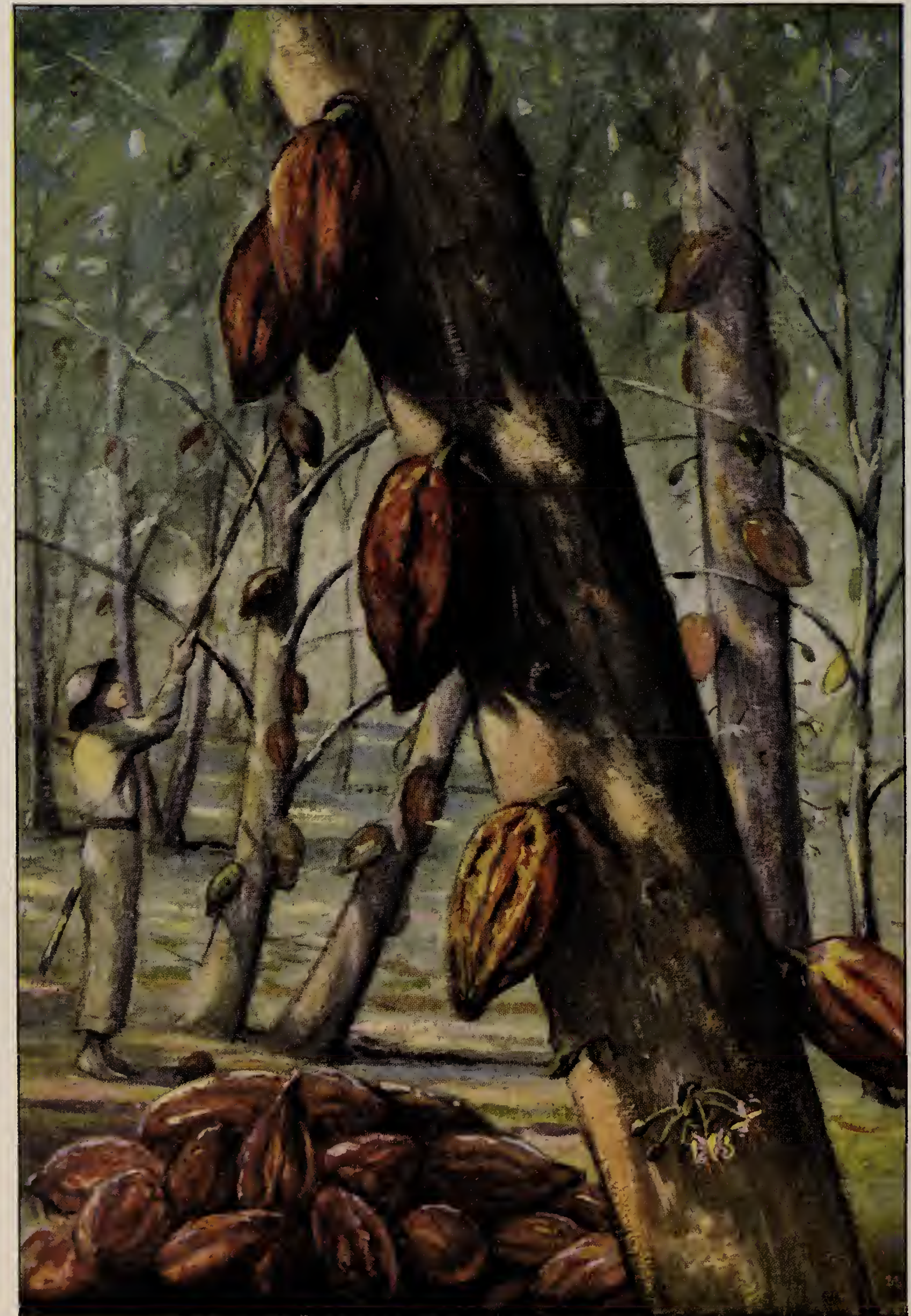
COALFISH. See Pollack.

COBNUT. See in the article on the Filbert.

COCA, the leaves of the coca-plant. *Erythroxylon coca,* a bush resembling the blackthorn, which grows to a height of five to eight feet. They are thin, opaque, and oval, tapering somewhat like tea-leaves in the best types, a light olive-green above and whitish green on the under-surface. When dried, they are deep green above and grey-green below, and if of good quality have an odor resembling that of tea-leaves and a warm, aromatic, pungent flavor. They are employed medicinally and in the manufacture of various tonic beverages for their stimulating property—which is akin to caffein but is held in the leaves in larger proportion than caffein is in coffee or tea.

The natives of various parts of South America, particularly Peru, chew the dried leaves, generally together with a little pulverized unslacked lime, for the ability they give to stave off hunger and to resist fatigue. Though this use has apparently been a daily custom for uncounted generations, it is seldom that any ill effects are noted unless the amount chewed is greatly in excess of that customary. The physiological punishment for such excess is severe, however, for the leaves contain the principle which, chemically extracted, is known as cocain—a useful but very dangerous and habit-forming drug.

In addition to its extensive cultivation in South America, the coca-plant is now also grown commercially in Ceylon, Java, and elsewhere.



GATHERING THE RIPE PODS OF THE CACAO, OR CHOCOLATE, TREE

COCOA AND CHOCOLATE. The word "cocoa," now universally used in English-speaking countries, is a corruption of "cacao" (a Spanish adaptation of the Mexican *cacauatl*) which still remains as the name of the tree which provides the beans, or seeds, which give us cocoa and chocolate, sharing the honor with the alternative title of "chocolate-tree." The botanical generic title of the tree is *Theobroma,* which, translated, becomes "food of the gods," clearly demonstrating an early epicurean recognition of its high value!

Cocoa-beans were used as food in Mexico, the West Indies, and elsewhere long before the discovery of this hemisphere by Columbus. The earliest references are found in the writings of the explorers who followed him—tradition has it that the first to tell of the beverage known to the Mexicans as *chocolatl,* was Bernal Diaz, one of the Spanish officers with Cortez, who observed Montezuma quaffing a thick concoction of cocoa-beans, vanilla, etc., from a golden cup. Its use was soon an established custom in Spain and Portugal, and as early as 1550 chocolate factories of considerable size existed in the south of Europe—in Lisbon, Genoa, Turin, Bayonne, and Marseilles.

The industry within the original thirteen United States was only ten years old at the commencement of the American Revolution, the first factory having been erected in Dorchester, Mass., in 1765, but to-day this country stands as the world's greatest manufacturer and largest consumer of cocoa products. Our annual importations of cocoa-beans range between three and four hundred million pounds, the principal sources being British West Africa, Brazil, Ecuador, San Domingo, the British West Indies (chiefly Trinidad and Tobago), and Venezuela.

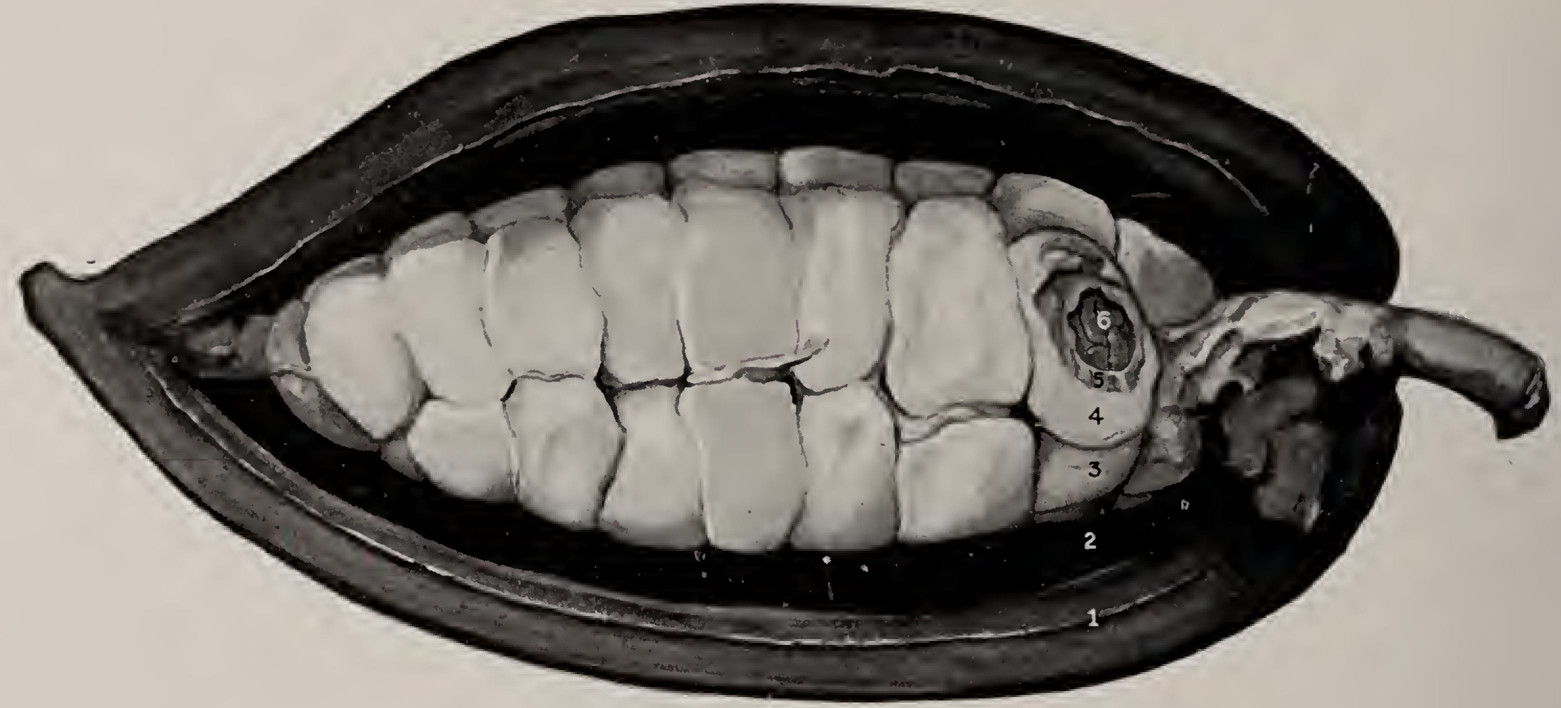
The cacao-tree grows to an average height of from sixteen to thirty feet and is of spreading habits and healthy growth. Bucares, tropical trees of rapid growth, are generally set between the rows to shade the young trees until they have attained maturity. A minimum temperature of 80° Fahr., and plenty of moisture, both of soil and atmosphere, are required to bring out their full bearing possibilities.

The trees begin to carry fruit at three or four years, continuing to the age of about forty. Some fruits are ripening all the year round, but two main crops are gathered, generally in June and December (or January)—the latter being commonly the more important.

The great bulk of the beans marketed is from trees of the species *Theobroma cacao*—practically all of the supply if the "alligator" cacao-trees of Central America and the West Indies, with their softer-shelled pods, and larger (and high quality) beans, belong to the species, as some botanists assert, instead of constituting a separate species as others aver.

The cocoa-beans are found in pods of varying shapes, from seven to twelve inches long and rather more than a third as much in maximum diameter. The ripe pod is yellowish-brown, orange, dark red, or purple, according to the variety, with a thick, tough rind enclosing a mass of white or pinkish, slippery, acid, cellular tissue, or pulp. The beans, about the size of an average almond, but more suggestive of vegetable beans in shape, are attached to a central stem and buried in the tissue, each in a thin shell varying from the papery texture of the Ceylon and Java beans to the hard skin of other varieties. In this fresh condition, they are bitter in flavor and of a light, generally purplish or pale-green color.

An interesting feature is that the little pink flowers and the resulting big pods (only one or two to a cluster of flowers) grow most freely on the older branches and



1. Hard outer shell
2. Soft inner layer
3. Bean embedded in slime tissue
4. Slime tissue drawn back to expose bean
5. Bean shell, or envelope
6. Cocoa-bean, or kernel

COCOA-POD, two-thirds average size, half of the outer shell removed

the trunks of the trees, often on those entirely bare of foliage, instead of among the fullest foliage as with the majority of other fruits.

In gathering, only fully ripened pods are taken, these being carefully cut from their ''cushions'' by a cocoa-hook if high on the tree, or by a short cutlass if within easy reach.

The cut pods are piled on the ground for twenty-four hours to dry and are then cut open and the beans taken out (their pulp coats still adhering). The next operation is ''sweating,'' or curing. The free acid juice is first drained off and the beans are then placed in fermenting, or ''sweating,'' tanks, in which they are enclosed and allowed to ferment for some time, great care being taken to keep the temperature from rising too high. This step removes the pulp, gives the beans a reddish tint, and takes away some of their bitterness. The fermenting process is in some cases effected by throwing the beans into holes and covering them with earth or clay.

Next come the final plantation processes—thorough washing and then drying in the sun or over steam-pipes, according to locality and conditions—beans of good quality which have been carefully fermented acquiring the heightened, warm, reddish hue so highly prized.

In cocoa and chocolate manufacturing establishments the beans are first cleaned, sorted, and roasted. The roasting is very important, for upon it depends to a great extent the flavor of the finished cocoa. Too little leaves the beans crude and unflavored, and too much will make them bitter.

They go next to the ''cracker,'' which cracks the shells and breaks the kernels into small pieces known as ''cocoa-nibs,'' or ''cracked cocoa.'' After the ''cracker'' comes the ''fanner,'' which separates the shells from the cocoa-nibs and sorts the latter by screens into six different sizes, the last being as fine as dust.

Cocoa-nibs are sometimes recommended by physicians who wish their patients to receive the full nutriment of the cocoa-bean, without the extraction of any of its oil, and without the addition of any flavoring or sweetening ingredients. A beverage is prepared by steeping the nibs in boiling water, or by continued boiling according to the result desired.

The shells serve chiefly as cattle-food and fertilizer, but are also sold for use as a beverage. They carry quite a little of the flavor of the cocoa-bean, and make a cheap and pleasing drink. Though usually bought as a matter of economy, they are also liked by some well-to-do people of weak digestion.

These uses are, however, of minor importance. For the products of general consumption, manufacture is not yet complete. The next step is "blending"—a process of moment, for cocoa-beans of different plantations and countries vary in flavor and strength very much as do tea-leaves and coffee-beans. It is the aim of each manufacturer so to combine them as to produce the best possible flavor and aroma that a reasonable cost will permit.

The cocoa-nibs designated for each blend are filled into heated "grinders," which reduce them to a thick, oily liquid.

If *Plain,* or *Bitter,* or *Baking, chocolate* is being made, there is little more to be done. The liquid is cooled to the proper temperature and run into molds where it remains until chilled to hard cakes by refrigerating machines.

For *Sweet chocolate,* cocoa-butter and sugar are added to the liquid which comes from the grinders, and all are mixed in the "mélangeur," the resulting paste being sent through the "rollers," coming from them smooth, even, and with all the air pressed out. Then, as a final step, it is weighed off and placed in molds, and shaken down to uniformity of appearance by automatic agitators.

For *Vanilla chocolate,* high-grade pulverized vanilla-beans—or vanilla or vanillin extract—are added and in some cases also a small quantity of flavoring such as cinnamon and cloves.

For *Almond chocolate,* roasted (generally whole) almonds are worked in.

In *Spanish chocolate* and similar varieties, cinnamon, clove, cardamom, mace, and other flavorings are employed in divers combinations and both with and without vanilla.

Milk (or *Sweet Milk*) *chocolate* is sweet chocolate with condensed milk or milk-powder added with the sugar.

For *Pulverized chocolate,* or *Soluble chocolate,* the cakes are re-ground into an impalpable powder.

In the manufacture of *Cocoa,* or *Breakfast cocoa,* the liquid which comes from the grinders is deprived of some of its oil, or butter, leaving a comparatively hard, dry substance which is ground to powder and bolted through very fine silk screens. Only the fine powder passes through, the remainder being held to grind over again.

One of the distinguishing characteristics of pure cocoa when ready for the market is a rich, reddish color, commonly known among artists as "cacao-red." When the powder is so dark as to appear almost black it is generally a sign that it has been made from imperfectly cleansed beans of poor quality, or has been artificially colored.

Dutch cocoas, manufactured chiefly in Holland and Germany, and *Dutch-style* of domestic production, are distinguished by their treatment with alkalis or alkaline carbonates, etc. The chief objects and effects are the supposed enhancement of the appearance of the beverage by darkening it to a resemblance to chocolate, and the more consistent suspension of the cocoa particles—the latter having given rise to the unwarranted claim of greater general solubility and, consequently, higher food merit.

It may be added parenthetically that the fact that a cocoa-tin is not full when opened does not necessarily imply short measure. The tins used by manufacturers are larger than required for the weight designated, as cocoa fresh from the machines bulks a little more than after it has been shaken down in commercial handling.

Broma is similar to cocoa in preparation except that practically all, instead of only part, of the butter is extracted.

The cocoa-bean contains a percentage of theobromine—which corresponds to the stimulating properties of tea and coffee—but its chief merit lies in its large proportion of nutritive substances. The roasted beans show an average of 49% pure oil, 18% protein, 10% starch, and 7% other carbohydrates, etc., presented in a form which is very palatable, whether consumed as a beverage or confection, in puddings or cakes. Its food value is highly regarded by all civilized governments—in Europe and the United States, chocolate is a part of the army ration as a food and of the navy ration as a beverage.

One square (one ounce) of plain chocolate generates about 173 calories. Two squares of chocolate, two medium-thick slices of bread, and a glass of milk constitute a wholesome and sufficient luncheon. The combination includes an adequate percentage of protein and affords about 600 calories (see Food Values).

When you eat chocolate or drink it as a beverage made with milk, eat plain (*not* buttered) bread with it. The chocolate and milk thus consumed contain sufficient fat—butter is not needed. This advice does not necessarily apply if cocoa is drunk instead of chocolate, but it is generally best observed with cocoa also, if made with milk. Neither chocolate nor milk-made cocoa should be drunk with a heavy meal.

To prepare cocoa or chocolate as a beverage, it should be boiled for four or five minutes in order to obtain the full flavor and digestibility. Neither is properly cooked by simply pouring boiling milk or water over it. But, on the other hand, care must be exercised not to cook it longer than five minutes as the penalty is the loss of much of the volatile oil which gives the aroma.

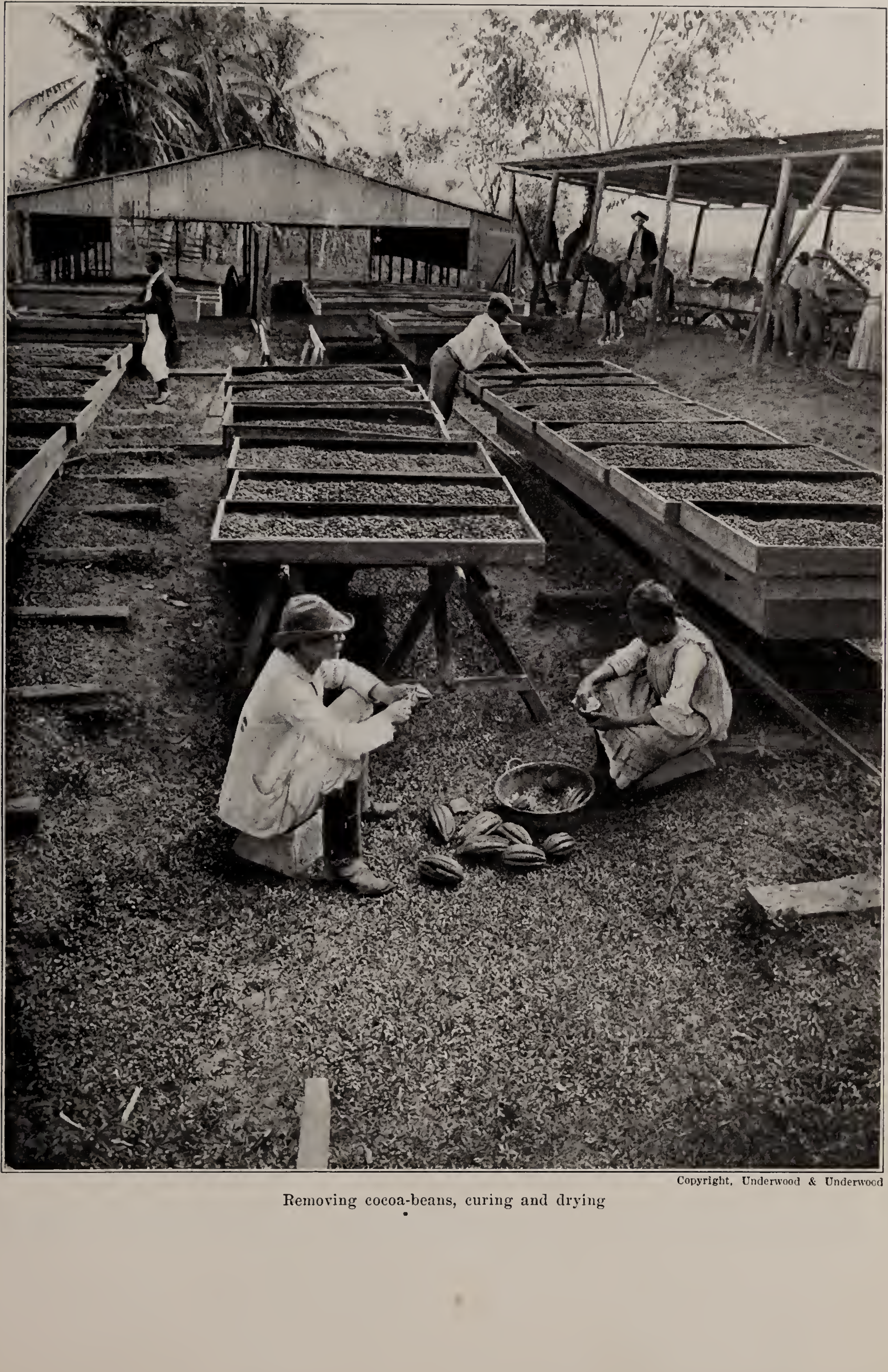
Also, the cooking should be done in water—not in milk. The several minutes' boiling makes cocoa or chocolate more easily digestible and brings out its flavor, but it gives a "cooked" taste to milk which offsets to some degree the delicacy of the cocoa flavor and aroma. If you intend making with milk, the best method is to cook the cocoa or chocolate in a small quantity of water, then to add the scalding milk when the five minutes is nearly up, stir well together, and remove the mixture from the fire immediately.

Unless the brand or style used is already highly flavored, the beverage is made especially delicious to the average palate by adding a pinch of salt and a drop or two of vanilla extract—just before serving if to be drunk hot, or before setting to cool if to be served iced.

Because of its smaller fat content, cocoa is more acceptable to some digestions than the richer chocolate.

Cocoa and chocolate and all allied products should be kept cool and dry.

The "white" appearance sometimes noted on cake chocolate generally indicates that it has been kept in an over-warm place. When pure chocolate is subjected to a temperature of above 80° Fahr., it begins to soften and melt and allows part of the cocoa-butter to rise to the surface. When the temperature is lowered, so that the chocolate again becomes hard, the outside will show a thin covering of congealed butter, which looks "white" in contrast to the brown of the chocolate itself. This is not



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Removing cocoa-beans, curing and drying

an indication that the chocolate is of inferior quality or is irretrievably injured, for if it should be melted and cooled at the right temperature it would resume its original color.

COCOA-BUTTER, the oil, or fat, extracted from the cocoa-bean. It has high commercial value. The greater part of it is employed in confectionery, especially in covered candies such as chocolate creams, but a considerable quantity is used in the druggist's trade—in the manufacture of toilet preparations and cosmetics, and also in the natural form without change or addition whenever the requirements call for a pure fat that will melt at the temperature of the body and that will retain its sweetness indefinitely.

Swiss "white chocolate"—apart from milk-chocolate types—is cocoa-butter sweetened either with sugar or with sweet chestnut-meal.

COCO DE MER, or Sea Coconut, or Double Coconut (*Lodoicea sechellarum*), a huge nut, resembling a double coconut and with coconut-style flesh, borne by a palm native to the Seychelles Islands. Large specimens weigh up to fifty pounds. Several years are required to complete the transition from flowering to full maturity. It derives its name "sea coconut" from the empty fruits—after the germination of the seed—found floating in the Indian Ocean long before travelers had discovered the palm itself.

COCONUT. The coconut-palm is probably native to tropical South America, carried thence in prehistoric days across the Pacific to its favorite home, the islands of the "South Sea." It is to-day widely grown in other tropical parts of the globe, particularly in the West Indies, Ceylon, and parts of India. Its distribution has been in probably every important instance due to human agency. There seems scant basis for the old theory of its general dissemination by ocean-borne seeds.

The palm frequently attains a height of a hundred feet—a long, straight, slender trunk, without either branch or leaf—perpendicular to the sky or leaning to one side or the other according to the mercies of the wind in its youth—with a crown of palm leaves for its head. The nuts hang downward near the trunk from the under-part of the crown—the yield averaging from fifty to a hundred nuts a year.

For commercial purposes the palms are raised in plantations, or "groves," and they generously respond to careful tending. It is estimated that there are more than ten billions under cultivation, and these are supplemented by vast numbers of wild and semi-wild.

The coconut, as the average person sees it, is a large, woody-looking nut, three or four inches in diameter, the shell enclosing an inside covering of half an inch or more of white meat, and holding a small quantity of coconut milk.

On the palm the nut is enclosed in a husk, two or three or more inches in thickness, according to the specimen and its stage of ripeness, and an outside-skin green until maturity. When the nut is first formed inside the husk the shell is thin, and in place of the firm, white meat is a thin coating of a white, creamy substance—which you eat with a spoon and find delicious—and a large quantity, two glasses or more, of sweetish water with a mild, delicate, coconut flavor. You may perhaps scoop out the cream and flavor it with lime juice or any especially well liked spice. As ripening continues, the outside skin takes on a brownish appearance, the husk shrinks and becomes more and more fibrous, the shell of the nut inside becomes harder, and the

COCONUT PALMS—a scene in the Philippines

A VERTICAL SECTION OF A COCONUT

(Considerably reduced)

creamy substance and the water inside the shell become the solid flesh and the smaller quantity of milk that constitute the coconut of general sale.

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Native coconut porters

The outside husk is removed before shipment here, partly to save space in packing but also because it is easier to ascertain the condition of the nuts—any damaged or cracked specimens are thrown out, as they would either dry up or become rancid in transportation. The "eyes" and "nose" in the "face" of the nut—the delicate spots in the shell—are often tarred over to prevent the entrance of air.

In places where they are grown, "green" coconuts are generally preferred for eating raw, the "cream" and water being sought. The meat of the ripe nut is principally used for cooking (in curries, for example), for making Coconut milk (which see), and in confectionery.

Our annual importations of whole nuts range upward to one hundred millions, principally from Central America and the British West Indies. This is supplemented by a still greater quantity (200 to 300 million pounds) of dried coconut flesh, or "copra," of which a large part comes from English traders or English sources—Australia and British Oceania leading heavily. Next in importance are the Dutch East Indies.

A good many of these whole ripe coconuts are sold for eating raw—a few green fruits are also brought here every year for special stores and individuals—but the most important traffic is in the meat itself—dried and shredded for cooking and confectionery—and in the oil produced from it. "Domestic prepared coconut" is generally sweetened. "Ceylon coconut" is unsweetened.

Coconut oil—in temperate climates, a soft, white fat—is obtained by pressing or boiling either the fresh meat or the dried copra, the fresh meat giving the choicer product. A thousand good-sized nuts yield about twenty-five gallons. The greater part of the supply is imported—the bulk of the annual total of 200 to 300 million pounds coming from the Philippines, with the Dutch East Indies next in line but a long way behind—to be variously used in "nut-butter" and cooking oil preparations, in the manufacture of soap, etc. The consumption of coconut "nut-butter" has greatly increased in recent years. (See the article on Nut-butter.)

There are several methods of gathering the ripe nuts. That most generally practiced is to permit them to drop of their own accord, leaving them to lie where they have fallen until the time set—monthly, or bi-monthly, or otherwise—for collecting them. This insures fully ripe nuts (with very few exceptions) but an objection is that the impact after a fall of fifty feet or more may injure the germ.

To gather the ripe nuts from the palms without permitting them to fall, insures the best results, but greatly increases the labor cost as the nuts ripen singly on a bunch—or at most two at a time.

A third custom is a periodical gathering both of those that have dropped of their own accord and of others cut from the palms and allowed to fall to the ground

—theoretically, in the latter case, taking only the nuts that are ripe, but in practice bringing in also those nearly ripe but lacking complete maturity and consequently inferior in oil content.

Those cut and permitted to fall may be severed by a sharp, curved knife on a long bamboo pole, or by a man climbing the palm with or without the use of a rope, or by the murderous notching of its trunk, or, occasionally, by trained monkeys.

It is perhaps fortunate for the native population that the nuts rarely fall of their own accord except at night (the "seal" then being loosened by the heavy dew).

After the gathering comes the husking. This is generally accomplished by splitting the whole nuts on upright hard-wood stakes, or iron spikes mounted on upright stocks, eighteen inches to two feet in height. The husks furnish coir—an important fibre used in the manufacture of buoyant cables, brushes, and mats, the highest quality being obtained from nuts gathered before fully ripe.

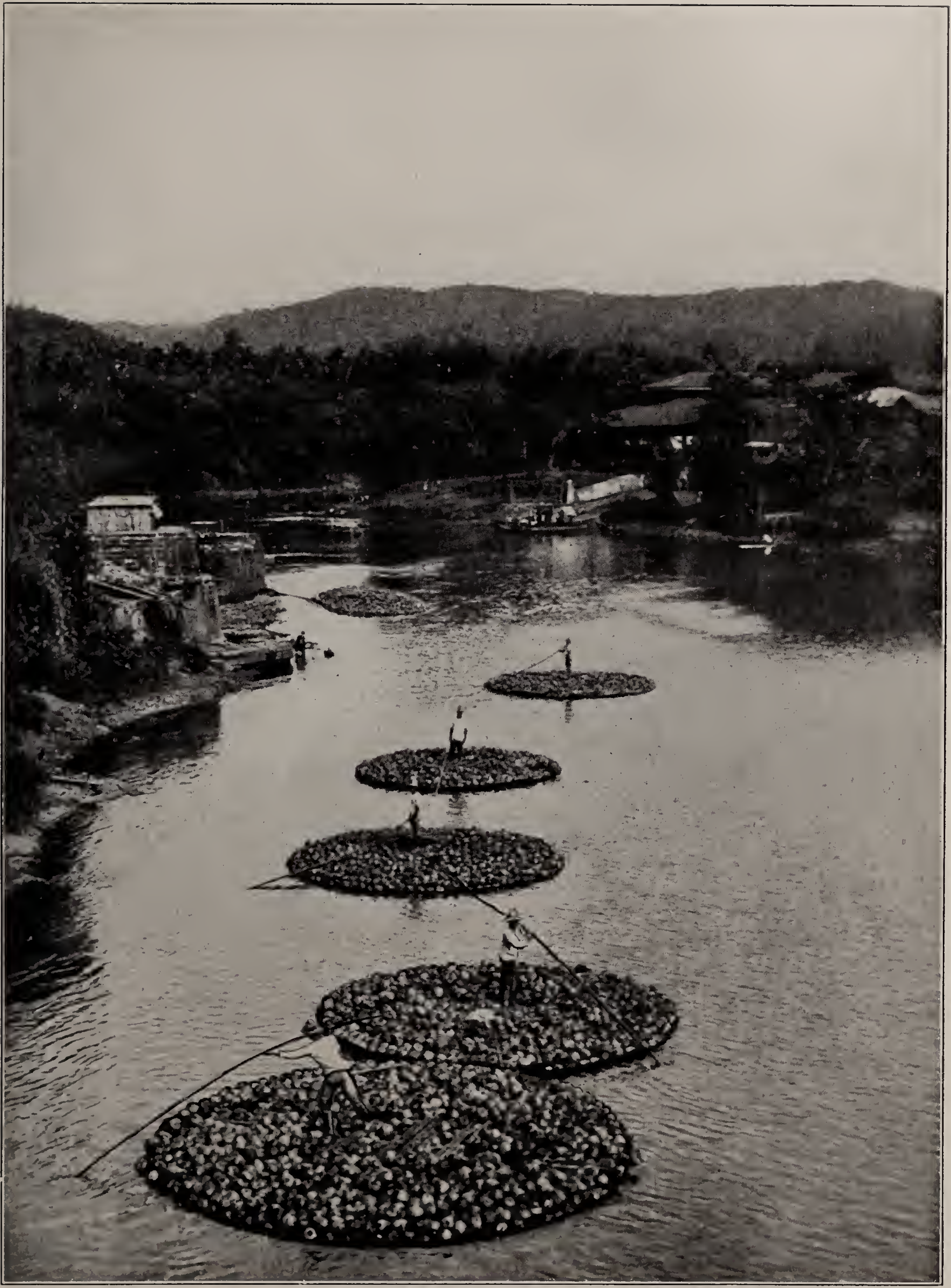
Next, if "copra," or dried coconut meat, is sought, the inner nuts are split in two by a heavy knife and the meat is removed, broken up, and set to dry in the sun, or on grills (usually bamboo grating over a pit fire of refuse husk and shell), or in kilns. Fine sun-dried copra is considered the best, but is only possible where climatic conditions guarantee, or make reasonably certain, several days of sunshine unmarred by rainfall.

The value of the coconut-palm to the natives where it flourishes can scarcely be exaggerated. There is literal truth in the native proverb to the effect that "He who plants a coconut-tree plants vessels and clothing, food and drink, a habitation for himself and a heritage for his children."

He who would do so could build himself a home of "porcupine wood"—the trunk of the tree—beautiful in grain and sufficiently durable for native purposes. Leaf-stalk rafters are to his hand, and his house is readily completed with a picturesque roof of thatched leaves. He can cover his floor with matting made from the coir, and the same fiber will supply him with clothing, cordage, and fishing lines. He can make brooms and brushes of the ribs of the leaves, and can utilize the old leaves in making buckets. The house completed, it can be decorated with fans and with cups artistically carved from the nuts. The palm furnishes transportation also, for the sea-going canoe of the South Sea Islander is made of rough, pliable planks of coconut-wood, grooved to fit and stitched together with coir twine.

As regards food, he can sustain life on the monotonous but dainty fare provided by the green and ripe nuts, and both temperance and intoxicating beverages may be prepared from both sap and fruit. The ripe nuts will give him also coconut oil in which he may fry any other food he may obtain, and from which he may manufacture soap and candles, and the terminal bud of any palm that is cut down for its timber may further be cooked and enjoyed as greens of a particularly delicate deliciousness.

A very famous beverage is "toddy," or "tuba," obtained from the unopened flower-stalks. The stalk is carefully bent downward and its tip removed. Then every twelve or twenty-four hours, for several days, a thin slice is cut off. The irritation set up finally brings a flow of sap, which is caught in a bamboo tube or other contrivance placed to receive it. The sap is collected twice a day, and each time another thin slice is cut off until the stalk is exhausted. A single stalk often yields a quart a day. By another method, binding and bruising play an important part in securing the sap. The toddy, delicate in flavor, and very sweet (up to 16% sucrose),



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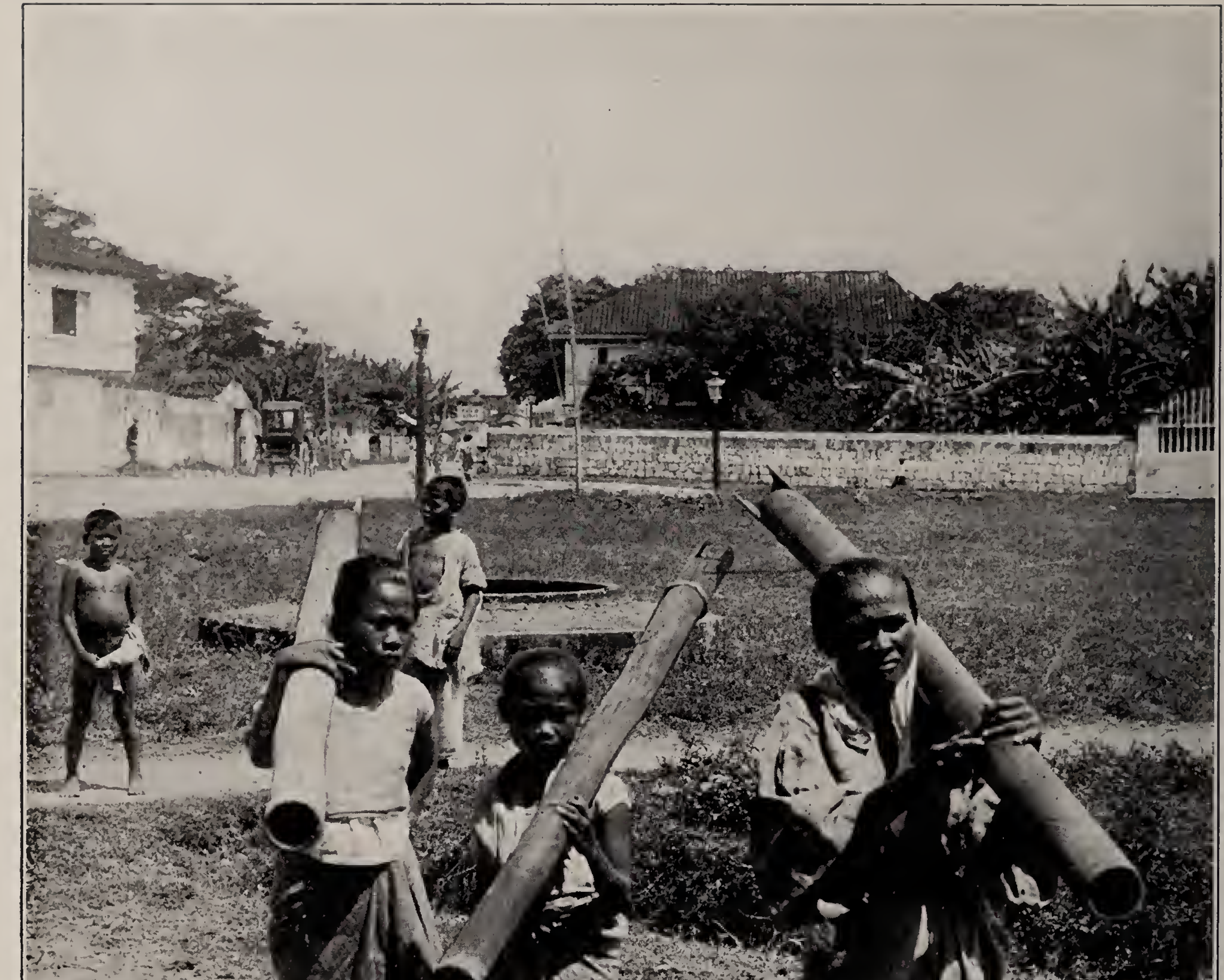
Coconuts grouped in rafts and thus floated down the rivers of the Philippines. This photograph was taken near Pasuquin, Luzon



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Bringing "tuba" (coconut-palm sap) to market in bamboo containers, Philippines is drunk fresh, or permitted to ferment—and thus consumed or distilled to produce an intoxicating liquor. It is also converted into vinegar and sugar, and in the East Indies is a common yeast source.

As sap extraction destroys the nut-bearing capacity, it is generally confined to trees devoted exclusively to the purpose, and in the Philippines, Ceylon, and elsewhere, the daily, or semi-daily, visits to the tops of the palms are facilitated by high bamboo or rope bridges connecting them. The barefooted natives are wonderful climbers and funambulists, but the work is dangerous even to them, and each year brings a toll of hundreds who fall to their death.

For *"Monkey's," or "Baby," coconuts*, see Coquito. For *"Double," or "Sea," coconuts*, see Coco de mer.

COCONUT MILK. (1) The liquid naturally developed in the ripe coconut. (2) A tropical preparation made by grating fresh, ripe, coconut flesh, mixing with water, and straining through cotton cloth. The result consists essentially of a weak emulsion of coconut oil, with a little gum and sucrose. It looks somewhat like cow's milk and is drunk as a substitute for it in India, in addition to being used in cooking. The hot milk is a pleasing "sauce" or addition to mashed yams or sweet-potatoes.

COD (see the color-page opposite 332), one of the most abundant of food-fishes, found in all northern seas and taken in great numbers by both nets and lines along the North-Atlantic and Arctic coasts. The most important fisheries are still to-day, as for centuries past, those of the Newfoundland Banks. The average market weight of the cod is less than ten pounds, but a good-sized specimen, or "steak cod," will range from twenty to thirty-five pounds, and a big one up to a hundred or more. It is a very voracious fish, all the small ocean inhabitants serving it for food, and extraordinarily prolific, the roe often containing from two to eight million eggs and sometimes constituting a full half of the weight of the female.

Cod is marketed in various forms, fresh, salted, and dried. In addition to the large consumption in North America, great quantities of the dried fish are carried from Newfoundland to the West Indies, South America, and Europe, especially to the Catholic countries of the latter continent.

Fresh cod is at its best during the months of October, November, and December. The head and shoulders—rated by many as the choicest portions—are preferably boiled, the remainder being usually sliced for frying, etc.

Cod meat can be distinguished from its occasional substitutes, the cusk, hake, and pollack, by its whiteness and flakiness. The other meats are darker and tougher.

The Alaska cod, abundant in Behring Sea and on the Pacific Coast as far south as Puget Sound, closely resembles the common cod, but is not held in quite as high esteem.

Salt Cod of all kinds is, when possible, cured immediately after catching. The fish are first split from head to tail and then thoroughly cleaned of all traces of blood by repeated washings in salt water. Part of the backbone is next cut out and the fish, after being drained as nearly dry as practicable, are placed in vats or similar receptacles and covered with salt, remaining thus until sufficiently cured. When the process has been completed, they are taken out of the vats, washed and brushed to remove superfluous salt, and placed to dry in the sun, spread out on wooden racks on the beach or elsewhere. They are considered fit for market when they show "bloom"—a whitish appearance on the surface. In this country, the meat is retailed in many forms, popular types being *Boneless cod* and *Flaked cod,* put up in small boxes; *Shredded cod,* in papers and cans, etc.

For export, the fish are generally pressed into large drums.

Codfish Bricks, or Tablets, are slices of dried cured cod molded and tied into block form.

Cod Sounds, or Swim-bladders, and **Cod tongues** are popular delicacies, both separately and mixed. The sounds are also dried, salted, and pickled, in addition to their consumption fresh.

Cod Roe is a favorite table delicacy and is also important commercially as a bait for fish, large quantities being used in the French sardine fisheries.

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Dried cod in a warehouse, Aalesund, Norway

Codfish Strips are either whole or half fish skinned and variously trimmed to suit the trade. They are frequently made up in rolls.

"Scrod" is a term which was originally applied to any fish, particularly cod, "scrodded," or "shredded," but it now generally signifies a young cod or haddock split and slightly salted.

Stockfish are cods—and other fish such as haddock, ling, and pollack—dried and sun-cured without salt. This is a popular Norwegian method. The term is also frequently applied to the dry-cured fish irrespective of the details of preservation.

For **Black Cod,** a misnomer, see the article on the SABLE-FISH.

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Drying codfish at Battle Harbor, Labrador

COFFEE. The civilized world is indebted to Africa for the coffee-bean. Its early history is clouded with tradition, but it seems to have been known by the Abyssinians for centuries before anyone else learned of its merits. They used it both for the making of a beverage and as a war food, for the latter purpose mixing the pulverized roasted beans with grease and molding the mixture into balls—this being the only food they carried on short forays. Its name comes from the Turkish pronunciation *kahveh* of the Arabian *qahwah,* signifying an infusion of the bean.

The use of coffee had become widespread throughout southern Arabia by the fifteenth century, and that country served as the stepping-stone to its universal consumption. It was Arabian coffee shipped through the port of Mocha that shed a halo around the name of "Mocha" and led the coffee-world into using it as a panoply for millions of tons that never saw either Mocha or any other part of Arabia!

Coffee crossed from Egypt to Constantinople some time in the sixteenth century, becoming there a favorite beverage—first in homes and later in the coffee-houses that dotted the city. West of Constantinople, Europe saw little of the new beverage until Venice adopted it early in the seventeenth century. England followed Venice —the student body of Oxford setting the example, and London succumbing next. Soon after, coffee-drinking spread all over the continent, the characteristic coffee-houses marking its course—at The Hague, Marseilles, Hamburg, Vienna, Paris and many other cities. The coffee-houses of London, the cafés of Paris and Vienna, and the caffés of Venice became important not only in point of number but also for the fashionable, literary, and political classes which crowded them daily. Nor did the Old World hold a monopoly. The bean during the same period crossed the Atlantic to the American colonies. As early as 1668 the burghers of New York (then New Amsterdam) were substituting coffee for the beer that had previously served them as a breakfast beverage!

This triumphal progress was made, furthermore, in the face of much opposition and numerous obstacles. Many religiously inclined people among both Mohammedans and Christians denounced coffee as an intoxicating and insidiously pernicious drink; statesmen saw political danger in the discussions which marked the attendance at the coffee-houses (on this ground they were closed on several occasions and in several countries); and governments opened new sources of revenue by heavy taxation on every gallon of coffee brewed. The beverage proved its real worth by outliving all restrictions, and even all changes from the customs and habits of those former generations, and has steadily gained in popularity to the present rather staggering figures of an average yearly consumption of more than three billion pounds.

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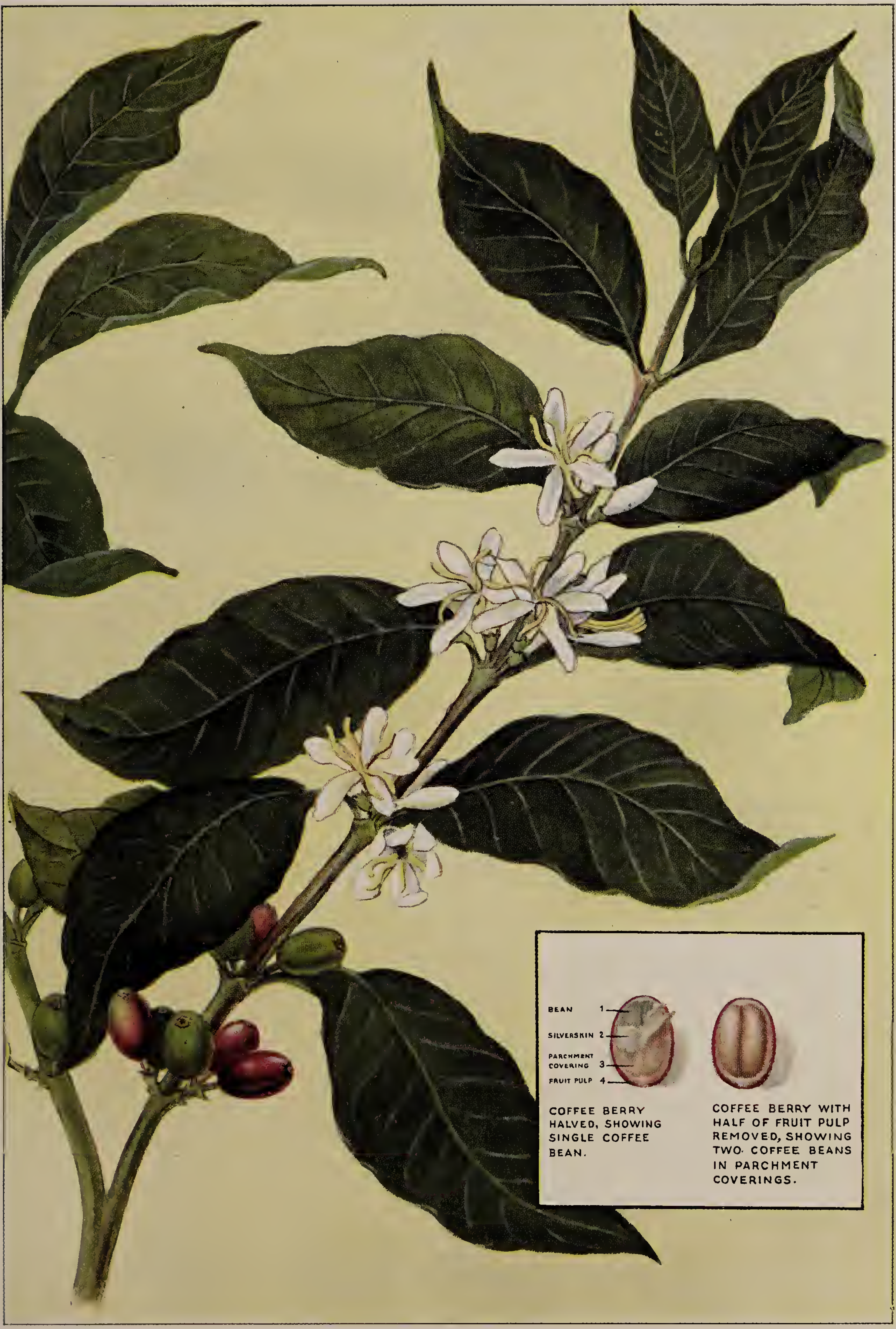
Bronze-colored maidens sorting over coffee, Nicaragua

Until the close of the seventeenth century, only a little more than two hun-


BEAN 1
SILVERSKIN 2
PARCHMENT COVERING 3
FRUIT PULP 4
COFFEE BERRY HALVED, SHOWING SINGLE COFFEE BEAN.
COFFEE BERRY WITH HALF OF FRUIT PULP REMOVED, SHOWING TWO COFFEE BEANS IN PARCHMENT COVERINGS.

COFFEE. (The branch slightly reduced.)

dred years ago, the world was entirely dependent on Arabia for its coffee. Various endeavors had been made to transplant the shrub, but without commercial success. A renewed attempt in Java finally succeeded—and in 1706 a small quantity of Java-grown coffee was exhibited in Amsterdam. Five years later, the Dutch East-Indian coffee industry proved itself soundly established by a public auction of the Java crop. The title "Java" had linked itself in fame with "Mocha" and they traveled together for two centuries with few to dispute their leadership! Other East-Indian and West-Indian islands—and various parts of Central and South America—followed Java's lead, coffee-plantations increasing steadily in number and size—until to-day, when Brazil stands as the world's greatest coffee producer—and Africa, the original source, has become an unimportant, or unknown, factor in the markets.

Growing the Bean and Preparing it for Market

The coffee-shrub is an evergreen plant which in its native growth may become a slender tree of ten to twenty feet in height, commonly with the greater part of the trunk clear but opening near the top into a few long, drooping branches. Under cultivation the shrub is kept in a condition of short, close growth, from four to six feet high, so as to increase the crop and to facilitate picking it, the branches, flexible and loose, expanding out and downwards. The leaves are oblong-ovate, from four to six inches in length, and from two to three inches in width when full grown; smooth, firm, and leathery, dark shiny green on the upper surface and pale green underneath. The flowers are white and fragrant, resembling the jasmine in odor, and grow in clusters in the axils of the leaves. The fruit, which quickly follows the flower, is a fleshy berry, green at first, changing to a yellowish tint, next to red (looking then much like a small red cherry) and finally to a smooth glossy purple or dark red.

The flesh, or pulp, of the fruit, sweet and agreeable in flavor and frequently eaten by the pickers, encloses two seeds, or beans, each inside a thin, parchment-like skin. These seeds constitute the raw coffee of commerce. They are generally oval, rounded on one side and flat on the other where they rest together, with a little groove running down the flat side. They are at first a soft bluish or greenish, becoming hard and flinty on exposure and in most types changing with age to a pale yellowish.

When only one bean is found inside the berry—occasionally in all varieties and frequently in a few—the "flat side" still holds the distinguishing groove but it is nearly as rounded as the other. These beans are known as "pea-berries," "male berries," or "caracolillo" (Mexican). They are most plentiful on old bushes.

The bulk of the coffee found in the world's markets is of varieties of the Arabian coffee-plant (*Coffea arabica*), ranging from the small roundish Mocha to the big Marogogipi. Increasing attention is however being given to the Liberian (*C. liberica*), Congo (*C. robusta*), and Sierra Leone (*C. stenophylla*) species. Of these, the Liberian is cultivated on an extensive scale, especially in Brazil. The shrub grows more freely than the Arabian and bears heavy crops of large, aromatic beans of good quality. The Congo bean is of smaller general importance, though the chief species of present cultivation in the Dutch East Indies. The Sierra Leone is valuable because of the very high grade of its beans but it is not a prolific producer as at present grown.

The Pointed Bourbon of *C. arabica* is also by some botanists classified as a separate species (*C. laurina*).

Propagation is by buddings, cuttings, and seeds, the custom varying in different countries. If started in nurseries, the young plants are transferred to the plantation when about eighteen inches high. In some countries they are set close together—from four to eight feet each way; in others they are spaced as wide as ten to twelve feet, and other crops are planted between the rows. The first crop is generally gathered when the shrubs are four years old, and they continue to produce for from ten to twenty years—and sometimes longer.

The berries are, in general practice, picked when just fully ripe—if not mature, the best flavor of the beans is lost, and if allowed to become over-ripe they fall off and may become spoiled on the ground. The picking is done by hand, the berries being dropped into a basket suspended around the neck of the gatherer, or into broad, flat bamboo receptacles placed beneath the shrubs, and thence emptied into hampers or sacks located at convenient points.

Under the "old" method, the harvested berries are allowed to dry as the first step of their preparation.

In what is known as the "new," or "washing," or "West Indian" process (W.I.P.), they are, instead, carried to a series of tanks of water. The first tank separates the ripe from the unripe. The ripe sink and are drawn off to the pulping machines, which crush the flesh of the berries without damaging the parchment skins of the beans. The crushed fruit travels on to the other tanks, where the loose pulp is removed by simple washing, and the remainder by fermentation, and washing, stirring, etc.

The washed beans (still in their parchments) next undergo drying—by exposure to the sun or by artificial heat, according to circumstances. They are then permitted to rest, or "cure," for several weeks before being subjected to the next step of hulling and peeling. The longer they are thus held as "parchment coffee"—even for months or years—the more, as a rule, they will improve. As, however, lengthy curing makes it very difficult to remove the underlying "silver-skin," they are seldom left in the parchment longer than is actually necessary.

"Hulling and peeling" consists in the removal, generally by milling, of both the parchment and the silver-skin. The bean after this process is at first very light-colored, but it soon changes to a sort of fern-green or greenish-yellow hue, and this color it retains for a considerable time if kept under proper conditions and away from dampness. With greater age the tint becomes, as already noted, a pale yellow, except some East-Indian beans which change to a dark brown as the result of storage methods and in ocean shipment.

As the beans emerge from the huller, they come first under the influence of a fan, which separates and removes the detached skins, and then go to the "separator" which eliminates sand and dust, and sorts the beans into different sizes.

The separation is followed by a careful sorting over by hand of the better grades to pick out any discolored or otherwise undesirable beans.

Next comes packing in bags or casks—and the coffee-beans are ready to compete in the world's markets.

The methods outlined are employed only on modern plantations equipped with improved appliances but the same principles are followed by all firms or individuals using the "washing process" on any scale.

By the "old," or "dry," method, milling is used entirely in place of the fresh pulping and washing.

The value of the coffee marketed by the producer depends to a large extent on the care and judgment exercised in bringing it through the various processes—and the

same care must be continued in the transportation of the bags to the port of shipment and in storing them in the ships which carry them to the consuming countries.

The transportation of coffee is an important item in its cost. Its journey from the plantation to some central point is often by human portage through mountain districts and then by slow, tedious, bullock travel for long distances to the coast.

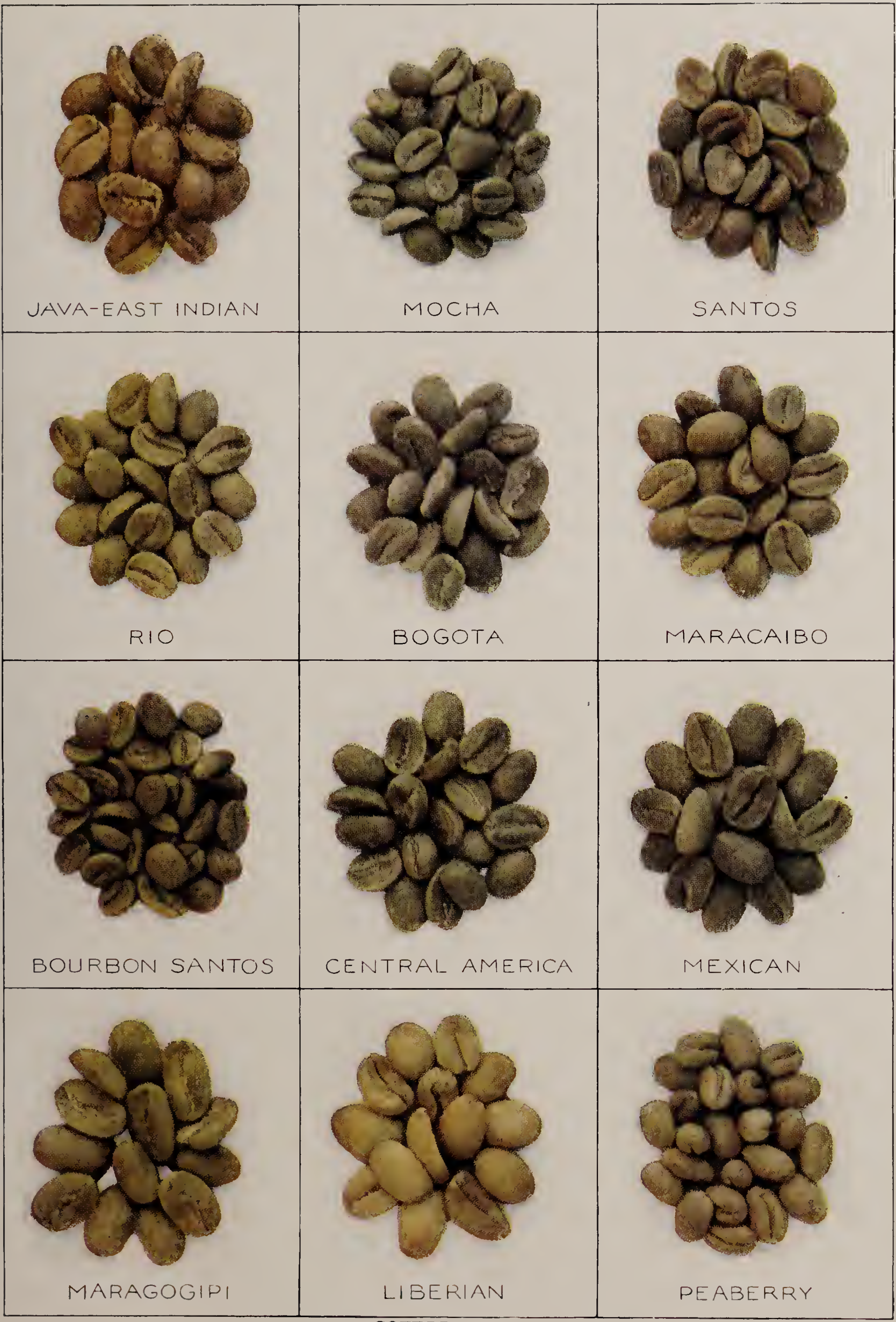
Coffee Consumed in the United States

The annual imports of coffee into the United States are generally from 1,300,000,000 pounds upward—an average of about thirteen pounds a year for every man, woman, and child represented in the census of 1920—only Holland exceeding this very large per capita consumption. Of the total, 60% and upwards comes from Brazil, more than 20% from other parts of South America (Colombia with 200,000,000 pounds or so, and Venezuela with 60,000,000 or more), and 10 to 14% from Central America (Guatemala leading and Salvador in second place), leaving only a comparatively trifling percentage for all the remainder of the world. The most important of the minor sources are the Dutch East Indies (Java, Sumatra, etc.), Mexico, and the West Indies (chiefly Haiti).

The coffee classifications best known to the general public are "Rio," "Santos," "Bogota," "Bourbon Santos," "Mocha," "Java," "Pea-berry" (already described), and "Maracaibo." The cheapest varieties of general consumption are the low grade Rios, and the dearest, the high grade "Javas," or East-Indian, and Mocha.

Brown Bros.

Weeding young coffee-plants set out under shade, Central America



JAVA-EAST INDIAN

MOCHA

SANTOS

RIO

BOGOTA

MARACAIBO

BOURBON SANTOS

CENTRAL AMERICA

MEXICAN

MARAGOGIPI

LIBERIAN

PEABERRY

COFFEE BEANS

Rio, Santos, and *Bourbon Santos* coffees are of Brazil.

Rios are generally heavy in body and inclined to be pungent. They are used chiefly as a bulk basis to be blended with milder beans.

Santos are as a rule milder than Rios, and both smooth and pleasing in the cup.

Bourbon Santos is a small bean which has grown rapidly in popularity on account of its acid, or vinous, character.

Bogota is a trade title for a large part of the output of Colombia. Choice grades (as fancy Medellin and Manizales) rank among the finest of the world's coffees. Bucaramanga is a second important commercial division.

Maracaibo coffees are of Venezuela, taking their name from the point of export. Cucuta and Merida are normally the best. Some of the Cucuta is Colombia-grown, sent out through Maracaibo as the easiest route. Another group name, also by the shipping port, is La Guayra (chiefly Caracas and Porto-Cabello coffees).

Java is a popular designation for Dutch East-Indian coffees, most of the output being of the nearby islands of Sumatra, Celebes, and Bali. They still command high prices but their merit is no greater than that of the best South-American beans. The circumstances which established their reputation have passed into history. Prior to 1909 nearly all the produce of the Dutch East Indies was sold by quarterly government auction, and any goods for which the upset price was not bid were retained in government warehouses to await an improvement in the market demand. It happened with great frequency that large quantities of coffee-beans were thus held for considerable periods—maturing under the best possible conditions—and then were shipped outward in the slow sailing-vessels of a bygone generation, still further mellowing and improving—the best qualities of "Old Government Java" becoming very choice indeed. Now the beans are sold by ordinary private contracts with firms and individuals, and transported in steam-vessels—or, in other words, are marketed just as crops are ordinarily marketed throughout the world. Paralleling this change in importance has been the destruction of the Arabian coffee-plant below 3500 feet elevation by the coffee-leaf disease. Its place on the great majority of plantations has been taken by the Congo bean. There is also a good deal of "Liberian-Java."

"Mocha" coffee, because of the fame that attaches to it, is entitled to more space than is suggested by the small figures of its importation. In the first place, be it understood, "Mocha" stands for "Arabian," for no coffee was ever grown in Mocha —which is only a shipping town surrounded by deserts, and is not to-day even an important shipping point, for the opening of the Suez Canal transferred nearly all its traffic to the ports of Aden and Hodeida. This country is supplied from Aden.

The best Arabian, and the true "Mocha," coffee of tradition is that from the province of Yemen. Much of it is produced under markedly adverse conditions—harvested from stunted shrubs growing in hot, sandy, stony, mountainside gardens. These handicaps are offset by the most painstaking human attention. The gardens are ranged on rocky terraces, one above the other, and are irrigated from large reservoirs of spring water placed above the highest. Also in contrast to New World methods is the custom of permitting the berries to ripen until they fall. They are picked up by hand, and then undergo careful drying, hulling, and cleaning, this to be followed by the separation of the most desirable, and their assortment and re-assortment by growers and merchants into a perfect gradation of sizes and qualities.

The fine qualities are very small, hard, and round; uniform in size; olive-green when new, and rich semi-transparent yellowish when aged. Their aroma when fresh roasted is distinctive, and the liquor is creamy, rich, rather heavy, a little acid, and extremely aromatic and fragrant. The choicest grades are seldom seen here, being almost completely absorbed by Egypt and Turkey.

Tehama Arabian coffee—that from the province of Tehama—is distinctly inferior to Yemen. The bean, though of about the same size, is immature in appearance and often mixed with fragments of hull, etc. Its flavor also is second-rate when drunk alone but it imparts a pleasing fragrance and delicacy to many blends.

Within these general geographical and trade groups, and in addition to them, are a multiplicity of titles and qualities. They are however of little importance to the average consumer, for all coffee ordinarily sold is a blend (blind to him!) of two or more kinds (see *Coffee-blending* on page 138).

There was formerly a great deal of deception and misunderstanding, much of it entirely unnecessary, in the buying and selling of coffee—not only by mixing in low grade, imperfect, and otherwise undesirable beans for the sake of greater profit, for similar practices are found in every line—but also in the marketing of good products under titles to which they had no right. The misuse of geographical names was for many years so widespread that they lost practically all their real significance—almost any small coffee-bean was passed as "Mocha" and any larger, uniform bean for "Java." That this was the case is convincingly proved when we learn that only a trifle more than one pound in every fifty or more received (sometimes less than one in a hundred) comes from Java or the vicinity of Java, and that all the coffee from the Mocha port of shipment amounts to only about one pound in several, or many, hundreds—yet every grocery-store in the country sold enormous quantities of "Java" and "Mocha."

Since the passage of the Pure Food Law there has been a great improvement in conditions. Millions of labels reading "Java and Mocha" were destroyed, others were amended by such additions as rendered them permissible. The word "Blend" was for a time so employed as to give prominence to the legend "Mocha and Java" on mixtures in which beans of those two kinds must have felt hopelessly in the minority, but this also was checked by the rule that coffees named in blends must be given in the order of the proportions contained in the package.

This revolution has proved of great advantage to the industry. The former methods tended to retard rather than advance the proper appreciation of coffee as a beverage which naturally follows consistent retailing of the different varieties, grades, and blends under inviolable titles. In many instances, the old style nomenclature was a distinct fraud on the purchaser by obtaining from him a higher price than the value of the beans. In others, where no fraud was intended and where the product was worth the price charged, the masquerade name attached to it was a foolish following of trade traditions. The practice was entirely unnecessary, for the average coffee sold here is of good quality, well and cleanly prepared, quite worthy of sale under its own proper names.

In defense of the retailer, and merchants generally, it must be added that for generations they were, in a majority of cases, themselves victims of a world-wide system of false naming and substitution and that they only passed goods on as they received them and designated them the "same as others did."

When the *adulteration* of coffee is practised, it is generally in the ground bean. Nearly every conceivable substitute has at some time been ground and roasted to a resemblance of coffee—among them chicory, beans, peas, carrots, and cereals.

Brown Bros.

Harvesting coffee, Sao Paulo, Brazil

If chicory is added without the knowledge or desire of the consumer, it is an adulterant. but it differs radically from the other articles mentioned, as a great many people, especially in European countries, consider its addition an improvement (see subhead in the article on Chicory).

Coffee Selection

Long experience is essential to the training of a coffee expert. There are so many different kinds of coffee, so much alike and yet with so many minor differences of size, appearance, color, and cup quality, that very few people can correctly judge the quality of a bean by its appearance raw—and only the keenest experts can determine its exact classification even after roasting. The best test for the average merchant or consumer is by a sample infusion after roasting and grinding.

A simple method of testing the purity of ground coffee is to put a little in a cup, pour boiling water over it, and pick out some of the smallest pieces with a needle—if they are soft, the coffee is certainly adulterated, for real coffee particles stay hard even after long immersion in water.

A test can also be made by putting a little in cold water. If nearly all floats and the water colors only slightly—the coffee is probably pure. If a considerable proportion sinks, it is adulterated—most likely with cereals, chicory, or similar substances. If the water turns a deep reddish tint, chicory has probably been added.

It must be remembered that the above tests apply only to the purity of the bean—they tell nothing of the flavor or aroma, which are determining points of value. A coffee may be perfectly pure, yet be harsh, musty, hidey, or in many other ways undesirable—hence the necessity of testing flavor and aroma by making an infusion.

Coffee Blending

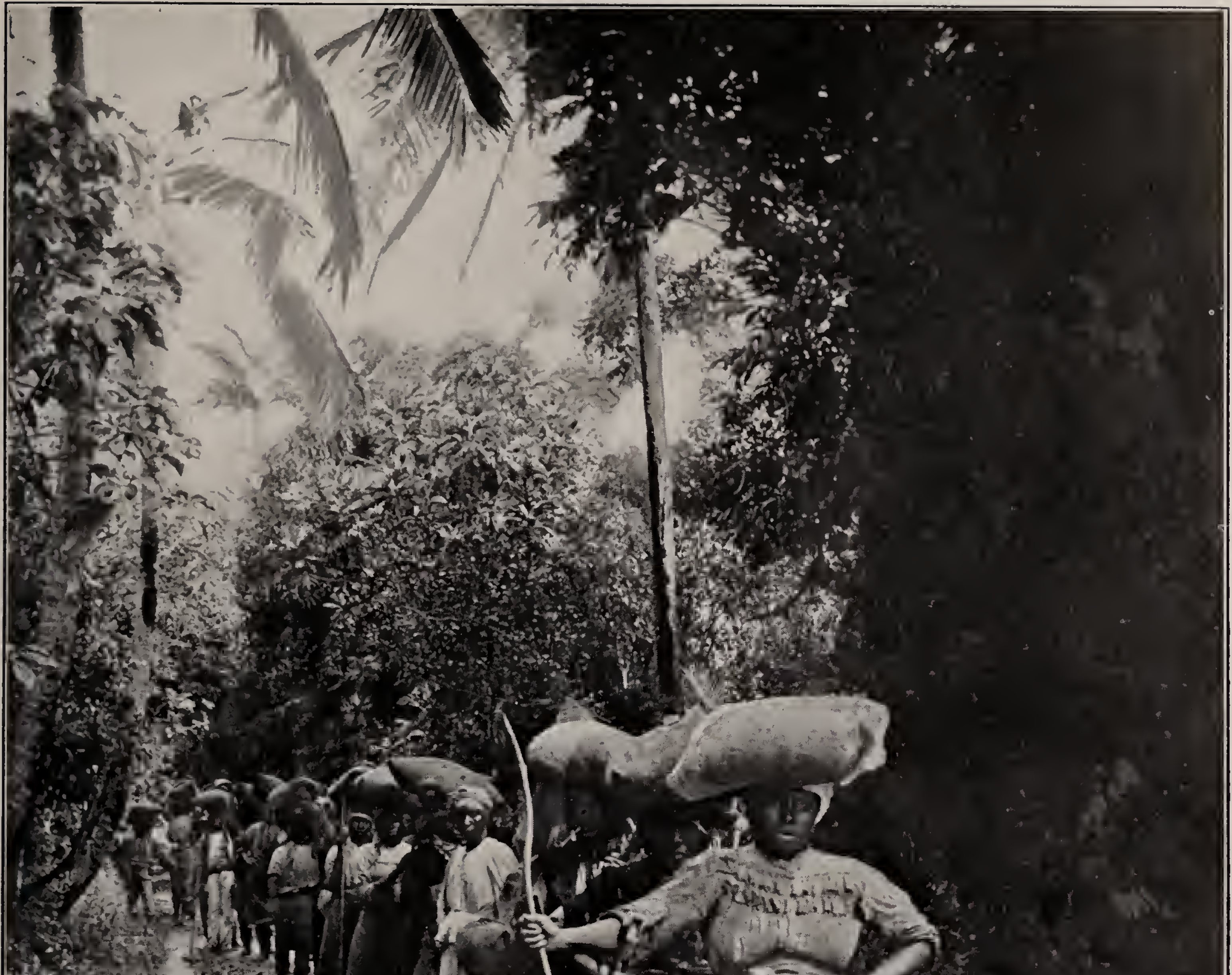
Blending is an important branch of the coffee business but no exact rules can be laid down for its practice, both national and local tastes varying widely. The fundamental intent in high-class blends is to obtain a smooth, mellow, aromatic liquor; to add strength if too mild and to modify if too heavy. The genuine Mocha, for example, is a little too acid, and the high grade "Java" generally not quite acid enough—hence the advantage of a blending of Mocha and Java. In low grade blends, the aim is to make cheap, coarse beans palatable by adding a proportion of others of more pleasing flavor.

The best blends are obtained by roasting each kind separately and then mixing and closing them up together immediately after—as old crop and new crop, or "mild" and "strong" beans require different lengths of time. If put into the cylinder together, some are liable to be half raw while others are overcooked.

Coffee Roasting

Roasting produces great changes in the coffee-bean. It makes the bean larger and lighter, and brown in color (principally by the conversion of its sugar into caramel); develops "caffeol," a volatile oily compound which is the chief source of the distinctive aroma and flavor of the beverage; and frees some of the caffein from its combination with tannin. It also renders the coffee oils more readily soluble by breaking down their cells.

The roasting in the average modern United States plant is preceded by passing the beans through a cleaning and milling machine which removes all foreign matter



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Coffee-pickers coming in from the plantation, Guadeloupe and gives a smooth finish. From this they go into large revolving perforated steel or iron cylinders, encased in brick and revolving around strong flames or over brisk fires. The cylinders are fitted with interior lateral ridges which keep the beans constantly moving in order that they may not become "tipped," or scorched. The time of roasting varies, but thirty minutes are generally required for a "light," and from thirty-five to forty-five minutes for a "high," or "dark," roast.

From the roaster, the beans pass to the "coolers," fitted with powerful exhaust fans which draw cold air through them to stop the roasting process, and then to the "stoner," which is an air-suction pipe generally about twelve inches in diameter and ten feet in height, the coffee being drawn up this pipe into a hopper, leaving the stones at the bottom to be discharged automatically. Finally comes the filling (by machinery) into bags and cans.

The operation of roasting is easy to describe, but it requires much experience and good judgment to bring out the full strength, character, and aroma.

A "light" roast should be of a cinnamon-brown. A "medium" roast should be deep chestnut. A "high," or "dark," roast should be of a chocolate-brown, and oily in appearance, but free from burnt or scorched beans—which will spoil the flavor of any coffee, no matter how high grade. The "medium" roast is the most desirable for general retail custom.

So important is this process that the infusion of an under-roasted or an over-roasted high-priced coffee will be less desirable than that of a minor grade that has been roasted to just the right degree.

Roasted coffee, whether in the whole bean or ground, should be kept in a container as nearly air-tight as possible—a tight-closing tin can or a closed preserving jar will answer the purpose—for it dissipates its aroma and flavor on contact with the air and (if in the bean) becomes tough and hard to grind.

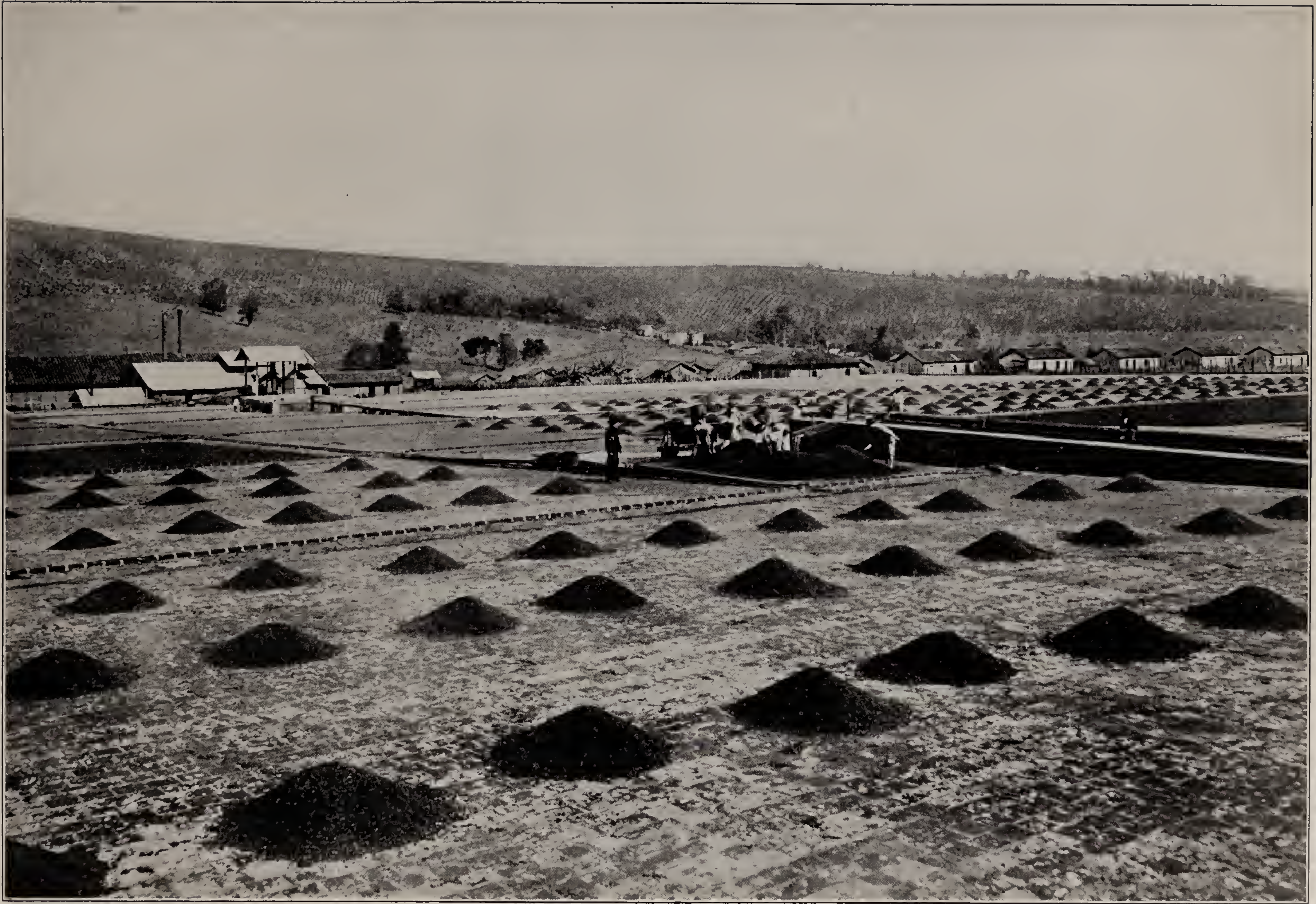
Grinding and Preparation

The chemical composition of the coffee-bean is complex but the beverage as customarily prepared contains only unimportant percentages of components other than caffein, caffein-tannate (a combination of caffein and tannin), and caffeol. Caffein furnishes its stimulating property. Caffeol, as noted under "Roasting," gives it most of its aroma and flavor. The tannin aids the caffeol in neutralizing the natural bitterness of the caffein and adds to the "body" of the beverage.

The proportion of caffein in the dry coffee-bean is smaller than that in the dry tea-leaf, but as more of the bean is used the two liquids commonly offer about the same stimulating power.

The first point to be considered in the preparation of the roasted bean is the manner of grinding or cutting it. For general home use it is best reduced to the size of granulated sugar. A coarser grind is not desirable as it requires too long an infusion to bring out its strength, and excessive infusion spoils both aroma and flavor. The other extreme of pulverized coffee offers a similar objection unless the beverage is to be consumed within a comparatively short time, for its fineness generally permits some of it to pass through the filter and consequently to be continuously steeped in the liquid, thus developing rankness of flavor.

Next one comes to the actual making. The result to be aimed at is a liquid which contains the fullest possible percentages of caffein and caffeol and only a moderate proportion of tannin. The prime essentials are that the coffee be of a blend that suits



Brown Bros.

Coffee drying grounds, Sao Paulo, Brazil the individual taste, and that it be fresh roasted, fresh ground, used in quantity sufficient to develop the desired strength, and fresh made in freshly boiled water in a scrupulously clean coffee-pot.

From these points onward, methods and opinions vary widely. The main dividing line is between the preparation of coffee *below* and *at* the boiling-point. *Below* the boiling-point gives a liquid with more of the natural aroma and flavor of the roasted bean (in these respects giving the direct opposite of the result in tea-making), and that is clearer and more brilliant in color, and less likely to disturb the digestion. Preparation *at* the boiling point gives a somewhat changed and stronger flavor which is frequently preferred.

For the *below*-boiling-point method, the water should be brought to a full boil but should be taken off the fire for a moment or two before adding the coffee to it—or before pouring it on the coffee (held ready in either an ordinary coffee-pot or a drip-pot). It should then be kept hot until ready to serve but should not be permitted to come to a boil. If an ordinary pot is used, the coffee should be well stirred in when added to the water or when the water is added to it. The "moment or two" that the water is held off the fire should be only a very brief period—only just long enough for the water to stop bubbling if it is to be poured onto the coffee in a separate (cold) pot; a trifle longer if the water has been brought to a boil in the coffee-pot itself.

The *boiling-point* method includes the old-fashioned boiling formulas (the coffee added to the boiling water and the latter kept boiling for a few seconds or for one or two minutes) and "percolation" (in which the boiling water continuously passes up a central tube to descend through the coffee-receptacle in the top of the pot). Over-boiling and over-percolation must be avoided, for the penalty is not only the loss of aroma and delicacy of flavor but also the extraction of tannin in quantities sufficient to be seriously detrimental to the average digestion if the beverage is freely consumed.

A thick earthenware pot is a little the best. Next come those of porcelain and enameled ware. An enameled pot is thoroughly desirable if in good condition; otherwise it is not.

The "clearing" necessary for coffee made in pots other than drip or percolator may be satisfactorily accomplished either by the addition of egg-shells to the dry coffee or by a dash of cold water after infusion.

By any method, the beverage should not be allowed to stand on the grounds for longer than ten to fifteen minutes, as otherwise too much tannin is extracted. Drip-pots and percolators offer the advantage of automatically obviating this danger.

Adding the coffee to the cold water and then bringing to a boil is poor policy as it also extracts an undue proportion of tannin.

The quantity of coffee to be used depends upon individual tastes, but the majority of old formulas should be revised upward. A greater amount—an increase of one-third or more—can be advantageously used of the milder, more delicately flavored blends of common consumption to-day than would have been desirable of the coarse coffee of general sale a generation or two ago.

French coffee. The special flavor noticed in much of the coffee served in France is usually due to any one or all of the three following causes: (1) the addition of 10% to 30% of chicory, (2) the especially heavy roasting of the bean, and (3) the addition of a little oil (or butter) and sugar during the roasting. It is generally made

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Harvesting coffee, Nyasaland, Africa

in a percolator or drip-pot from fine-ground coffee. If a drip-pot is used, the liquid may be passed through it two or three times in order to acquire greater strength.

Café au lait, "Coffee with milk," or "French breakfast coffee," generally means strong coffee served with boiling milk—from one quarter to a half of coffee, and the cup then filled with the milk.

Café noir, Black coffee, or *After-dinner coffee,* requires an especially generous proportion of coffee, and percolation continued until the liquid is black.

Demi-tasse de café, or *café demitasse,* means literally only a small or half cup of coffee, but, carelessly used, the expression has come to signify *Café noir,* or *After-dinner coffee.*

Café à la crème is made by adding plain or whipped cream to good *Café noir.*

Vienna coffee is prepared in a special urn which passes and repasses the steam through finely ground coffee. It is served with whipped cream.

Creole coffee is produced by slow filtration. The coffee is pressed compactly in the filter of the pot and a small quantity of boiling water is poured over. When this has passed through, more water is added, the process being continued at intervals of about five minutes. The result is a very strong and rich extract, which may either be served fresh or be preserved in an air-tight vessel for future use. A tablespoonful or so of good "Creole coffee" is sufficient for a cup of ordinary strength.

Turkish coffee is essentially a strong, unstrained, muddy, generally sweet, preparation of finely pulverized coffee. There are numerous formulas. One of the best is to add the sugar to the water and slowly heat it until the sugar is melted, then to add a liberal quantity of the pulverized coffee (stirring in very thoroughly), and bring it to a boil two or three times—taking it off and putting it back on the flame, but not permitting it to boil. It is then poured at once into small cups for service, without straining or settling. It is to be sipped, not quaffed, and this (incidentally) permits the grounds to settle to the bottom of the cup. The first foamy cup out of the pot is considered the best. It may also be prepared by adding the coffee (and sugar if desired) to cold water and bringing to a boil, or by pouring boiling water over, stirring in well, and immediately serving without any further preparation.

Dutch coffee is prepared by cold water process from very fine ground coffee held in a special filter with top and bottom reservoirs. It requires four hours or longer for the water to percolate through the coffee, and in its passage it acquires strong flavor and strength—but this includes a great deal of tannin.

Russian coffee is strong black coffee.

Coffee extract, or essence. Genuine coffee extract is made commercially by distillation—steaming and evaporating the liquid until it is brought to the desired concentration. One or two teaspoonfuls is generally sufficient to make a cup of moderate strength. For household purposes, it can be made with nearly the same result by following the formula for "Creole coffee."

Coffee, whether raw or roasted, should always be kept away from strong odors, as it absorbs them very rapidly. Furthermore, roasted coffee (as already mentioned) should be kept in an air-tight container.

Physiological Effects of Coffee Drinking

Coffee is to the ordinary individual a wholesome beverage which tends to his general well-being and adds appreciably to the pleasure of meal time. Many people

—including not a few of its most confirmed devotees—nurse a secret fear of its caffein component, but (if it be consumed in moderation) the caffein taken into the system—about 1¼ to 1½ grains in a large cup of average strength—is not sufficient to unfavorably affect the average adult, nor to outweigh the advantages derived from the beverage. The mentioned proportion of caffein should, however, serve as a warning against immoderate consumption.

Those who find coffee a cause of indigestion are perhaps victims of improper preparation—if not, their logical course is to avoid its use.

Those who, or whose systems, are undesirably affected only by the physiological action of the caffein can now enjoy coffee from which the caffein has been largely, or entirely, extracted.

COHUNE NUT, the fruit of a Central-American palm, oval or spindle-shaped, about two to 2½ inches in length and 1½ inches in maximum diameter, with an exceedingly thick, hard shell. The flesh contains 40 to 50% of edible oil that is largely used in Europe in the manufacture of imitation butter.

COKERNUT, a method of spelling "cocoanut" introduced by the London custom-house in order to distinguish more readily between this and other articles spelled much in the same manner and extensively handled commercially—as *Cocoa, Coca, etc.*

COLA-NUT, one of several spellings of KOLA-NUT (which see).

COLD STORAGE. See ICE, REFRIGERATION, AND COLD STORAGE.

COLE SLAW. See under the heading of SLAW.

COLLARDS, several styles of kale whose leaves are produced in tufts, or folded rosette-style in the center. They withstand greater heat than the common head-cabbage and are therefore largely grown in the southern states. The leaves are used while young and tender. "Georgia collards" often attain four feet in height.

The title of "collards" is also applied to the leaves of any kind of cabbage when cut very young and before heading.

COLORS. A great improvement has been made during the last few years in the coloring matters employed in the preparation of foods, candies, etc. The use of unwholesome chemicals has been practically eliminated and there is no longer any reason for the consumer to look suspiciously at an attractively colored confection. Every tint desired can now be obtained in perfectly harmless vegetable and other color extracts, supplemented by a number of coal-tar, or aniline, dyes approved by the government after painstaking analysis and investigation.

Vegetable colors are derived principally from annatto, archil (a lichen), indigo, quercitron (the bark of the black oak), safflower, saffron, spinach, and turmeric. Carmine, a brilliant red and one of the oldest of present colors, is obtained from the female cochineal, a small cactus-inhabiting insect of Mexico, Peru, and several Mediterranean countries. The dark brown of caramel is produced by heating sugar.

The use of coloring matters nevertheless still needs—and in most states receives—very close inspection and regulation. There is no longer any danger to health, but proper control is necessary to prevent commercial fraud by the use of colors—i.e., so improving the appearance of inferior articles as to make it possible to sell them at the price of better-class goods. The use of colors solely to enhance the enjoyment of foods—as in candy, and many other articles—is entirely legitimate. To do so to conceal their inferiority, is reprehensible and unlawful, and the practice should be severely suppressed wherever and whenever attempted.

Colors for household use are retailed in both paste and liquid forms.

COMESTIBLES, a term borrowed from the French, used in England and Continental Europe to embrace the entire class of edible goods.

COMFITS. (1) ''Pan work'' candies, such as sugar-coated almonds, with a distinctive center covered by successive coats of sugar (see CANDY). The original comfit was a grain or small piece of spice thus covered. (2) Any fruits or roots, etc., preserved with sugar and dried.

COMPOTE. See *Culinary Terms* in the APPENDIX.

COMPRESSED YEAST, the most powerful of all fermenting agents in domestic life, was introduced from Germany about 1862, and has grown in popularity until thousands of wagons make daily rounds of the grocery-stores to supply fresh cakes and exchange the stale. See also the article on YEAST.

CONDENSED AND EVAPORATED MILK. The invention of the first commercially successful process of condensing milk is generally attributed to Gail Borden in the United States in 1856, but some authorities give the credit to Switzerland. A few years later the exigencies of the Civil War resulted in national recognition of the great practical importance of the product and advertised its merits throughout the world. It soon after became a commodity of universal use on ocean steamers and in mines, forests, and construction camps, reaching ultimately every nook and corner of the universe.

There are to-day more than four hundred factories in the United States, all using the vacuum process of the original patent—as this makes it possible to boil and thus evaporate milk at a temperature so low that there is comparatively little change in chemical composition or flavor. The industry consumes yearly more than three billion pounds of fluid milk and the annual value of its output approximates $300,000,000. Exports run into high figures.

The fundamental requirement of a first-class product is absolutely pure milk produced under the most hygienic conditions. To secure this necessitates a multiplicity of rules and precautions. Every cow is inspected by veterinary experts and its milk is tested by laboratory analysis. The food of the herd is also carefully controlled—they must not eat turnips, or brewery grain, or any other food that will impart a disagreeable flavor to the milk or reduce its richness. They must be kept clean and groomed and similar attention must be given to all their surroundings and to every utensil employed. It is in these respects that milk used for making condensed or evaporated milk is superior to the ordinary store and delivery milk of many parts of the country.

To appreciate the underlying principle of manufacture, one must remember that the composition of milk includes from 84% to 90% water. Any desired part of this water can be extracted without removing any of the casein, fat, milk-sugar, etc., all of which remain in the condensed, or evaporated, product.

In the manufacture of *Sweetened condensed milk,* the liquid milk is strained, heated to the proper temperature to expel the gases of the milk and destroy bacteria, again strained, mixed with granulated sugar, and run into the vacuum-pans and condensed. After cooling, it is ready for canning.

The vacuum-pan employed is an egg-shaped, copper vessel heated by interior steam coils and an outside steam-jacket around the lower portion. In one side of the dome is a small window, through which a light illuminates the interior, and opposite is an eyeglass through which the condition of the contents may be observed. The pan is also provided with a vacuum-gauge, test tubes, and gauges.

Good sweetened condensed milk will keep for years, but it will thicken in time—poor brands naturally becoming thick and hard sooner than well made full-cream products. The retailer should keep it in a cool, dry place, not near boilers, steam pipes, or any extreme heat. In the home, as a can seldom outlasts the day, it is not likely to spoil, but the best place for it is, nevertheless, in the refrigerator, so covered as to guard it from absorbing the flavors of meats, etc. It is a convenient and valuable food and more readily digested than raw milk, but it is not suitable for infant feeding in normal cases because of the disproportionate preponderance of its sugar content.

"*Unsweetened condensed milk,*" largely used for city consumption and delivered in bottles, is made by the same method as the sweetened except that the sugar is omitted. It is not intended for long keeping. Diluted in the right proportion, it is in food value very similar to pasteurized milk of the same grade.

Evaporated milk is the trade designation for canned unsweetened condensed milk. It is evaporated in vacuum-pans to the consistence of cream, then run over cooling pipes and into cans, and immediately sealed, followed by the same "cooking" for sterilization as is given to other canned goods. In the can this milk will remain good almost indefinitely, but after opening it should be kept in the refrigerator or other cool place.

Evaporated milk of good quality is, when diluted with two-thirds of its bulk of pure fresh water, an excellent substitute for fresh sterilized milk for general purposes. It does not fill the purposes of *raw* fresh milk in the feeding of infants and children, for the C-vitamins are largely destroyed in its preparation (see Food Values and Milk).

Though the same principle is employed in all condensed and evaporated milks, there is plenty of room for discrimination in purchasing different varieties. The best grades are creamy-white, smooth, free from a "cooked" taste, and of just the right consistence. Furthermore, there is a wide range in food value, for the latter naturally depends on the amount of water extracted.

CONDIMENTS, articles such as salt, vinegar, spices, and sauces, taken with food to season or improve its flavor. A majority of them, in moderation, stimulate both appetite and digestion. Their excessive use tends to vitiate the gastric juice and injure the stomach.

CONFECTIONERY, a word that may be employed to embrace a wide range of sweet edibles, including pastry, but is here considered as synonymous with Candy, which is treated under its own head.

CONSERVES, fruit, etc., preserved with sugar, the style and purpose varying with the user of the term. It is sometimes employed as a synonym for "preserves," or cooked fruit in sugar sirup. If used by a candymaker, it signifies candied fruit. If by a pharmacist, reference is to fresh flowers, fruits, and roots preserved by beating with powdered sugar to the consistence of stiff paste, the object being to retain as much as possible of the natural properties of the raw fruit, etc. The conserves of the candymaker are for consumption as sweetmeats; those of the druggist are frequently employed as a vehicle for medicines.

To the working confectioner, the term "conserves" means sugar and added ingredients cooked rapidly and carefully and without producing a "grainy" effect.

CONSOMMÉ. See subhead in the article on SOUPS.

COOKERY. The fundamental principles of cookery may for general consideration be divided under the heads of Parboiling, Boiling, Steaming, Stewing, Roasting and Baking, Broiling, Frying, and "Sauté."

Parboiling, or "Blanching," is a process designed principally to improve the appearance of poultry, tongues, etc. It imparts a whiter color and softens some articles, while adding firmness to others (as sweetbreads). The usual method is to put the article into cold water and gradually raise the temperature to the boiling point, then taking it out, plunging into cold water held in readiness, and leaving it there until cold.

Parboiling meat, although rendering it more sightly, lessens its nutritive qualities by abstracting a portion of the soluble salts which it contains—especially the phosphates. Fresh animal food, before being dressed, may be washed or rinsed in cold water without injury, but it cannot be soaked in water at any temperature much below the boiling point without the surface, and the parts near it, being rendered less nutritious.

Boiling, in the general culinary acceptance of the word, is the simplest and (when properly performed) the most economical method of cooking, as the cooked flesh and the accompanying broth represent practically the entire nutritive value of the raw food.

The actual boiling temperature, 212° Fahr., should be maintained throughout the cooking of nearly all green and a majority of other vegetables. In the cooking of meats it should be restricted to the first five or ten minutes—after that, it should be reduced to simmering at a temperature of 175° to 185° Fahr. The first few minutes' boiling coagulates the albumin in the surface of the meat, forming a kind of envelope which prevents an excessive amount of the minerals, blood, etc., escaping into the water. Then the simmering cooks the inside but leaves it tender—the heat which reaches it is sufficient to develop its flavor but is not high enough to harden it. The pot should always have its lid on in order to avoid loss by evaporation, and the food itself must be kept covered with water—if more water is required to take the place of that lost by evaporation, hot water should be added in order to avoid changing the temperature.

Salt meat for boiling should be put into cold water (the opposite of the rule for fresh meat).

No exact rules can be given as to the time required to boil foods properly, but moderate care and judgment will nearly always suffice as guides.

(See also additional suggestions in the last page of the article on Beef and in the article on Vegetables.)

Boiling meat for broth. When strong broth is desired more than the meat itself, the meat should be put into *cold water* (as that permits a larger proportion of the flavoring and nutritive ingredients to escape into the water), then gradually brought to a boil, and thereafter simmered until done. (See also articles on Broth and Beef Extract.)

Steaming is slower than boiling, but with proper utensils it is considered especially desirable for the cooking of small pieces of meat and some vegetables and puddings.

Stewing follows the same theories as *Boiling*, for it is nothing more nor less than simmering in a smaller quantity of liquid, the meat and liquid being served together as a ''stew'' instead of separately as ''boiled meat'' and ''soup'' or ''broth.''

It offers the great economic advantage that, properly performed, it will render tender, palatable, and nutritious the coarser, cheaper parts which would seem undesirable if broiled, roasted, or baked.

The meat chosen should have little fat, the cooking should be slow and easy, the scum and fat should be removed occasionally, and the pot or pan should always be covered. The meat is frequently partly fried (''browned'') or parboiled before setting to stew.

Roasting and Baking. The term ''roasting'' formerly implied the cooking of meat on a spit before an open fire, but the ''roast'' of to-day is (in this country) invariably baked in an oven. The memory of the old method survives in the persistent specific association of the word with meats (as roast beef and roast lamb). Other foods similarly cooked are generally described as ''baked'' (as baked weakfish and baked potatoes).

Though ''roasting'' involves a considerable loss of weight, it has always been and still remains one of the most popular methods.

The chief points to be observed are:

(1) To *keep the oven clean.*

(2) To regulate the temperature to avoid both waste of time by too slow cooking and poor results by excessive heat.

(3) That the greatest heat should be for only the first ten minutes, to obtain the outside envelope of coagulated albumin to retain the juices—as mentioned under the head of *Boiling*—and then should be more moderate—and steady.

(4) That the meat must be basted frequently, for this greatly assists in the cooking, keeps the meat juicy, and improves the flavor.

Both roasting and baking develop the meat extractives, or flavor, to a high extent, lightening the meat at the same time by the melting of some of the interleaved fat and changing some of the connective tissues into gelatin.

Braising is a popular French method which may be described as a combination of roasting and stewing. Small joints or pieces of meat are placed in a braiser—a shallow stewpan with a closely-fitting, grooved lid—and the cooking, very slowly done, is started on top of the range and finished in the oven.

The braiser is always lined with a "mirepoix," a layer of slices of bacon or ham, vegetables, herbs, etc., and the meat is generally moistened with stock—broth of meats—and vegetables—or stock and wine. Delicate meats are protected by covering with buttered paper. The result is a very savory and aromatic dish.

Broiling is the principle of old-fashioned roasting applied to smaller pieces of meat. Important points to be remembered are:

(1) To keep the gridiron clean and well greased.
(2) To have a clear, bright fire.
(3) To season the meat before putting it on the gridiron.
(4) To quickly harden both sides to avoid loss of juices.
(5) To avoid dropping fat into the fire, as this results in jerky, smoky flames which are liable to spoil the flavor of the meat.
(6) Not to over-cook.

Frying has been erroneously described as "boiling in fat." In effect it more nearly corresponds to the principle of roasting, as fat or oil attains a much higher temperature than water and more effectually seals the outside of the meat or other food being cooked. Care should be taken that the fat or oil is at the right temperature—as hot as possible without reaching the smoking or burning points.

"Dry frying" signifies the use of only a small quantity of fat or oil.

"Deep," or "wet," frying is the use of sufficient fat or oil to cover the article being cooked. Butter is not suitable for deep frying as it is liable to burn. Corn, olive, peanut, and other high-class vegetable oils of similar character do not offer this objection.

Care should be taken to avoid over-frying as the result is to make foods very indigestible.

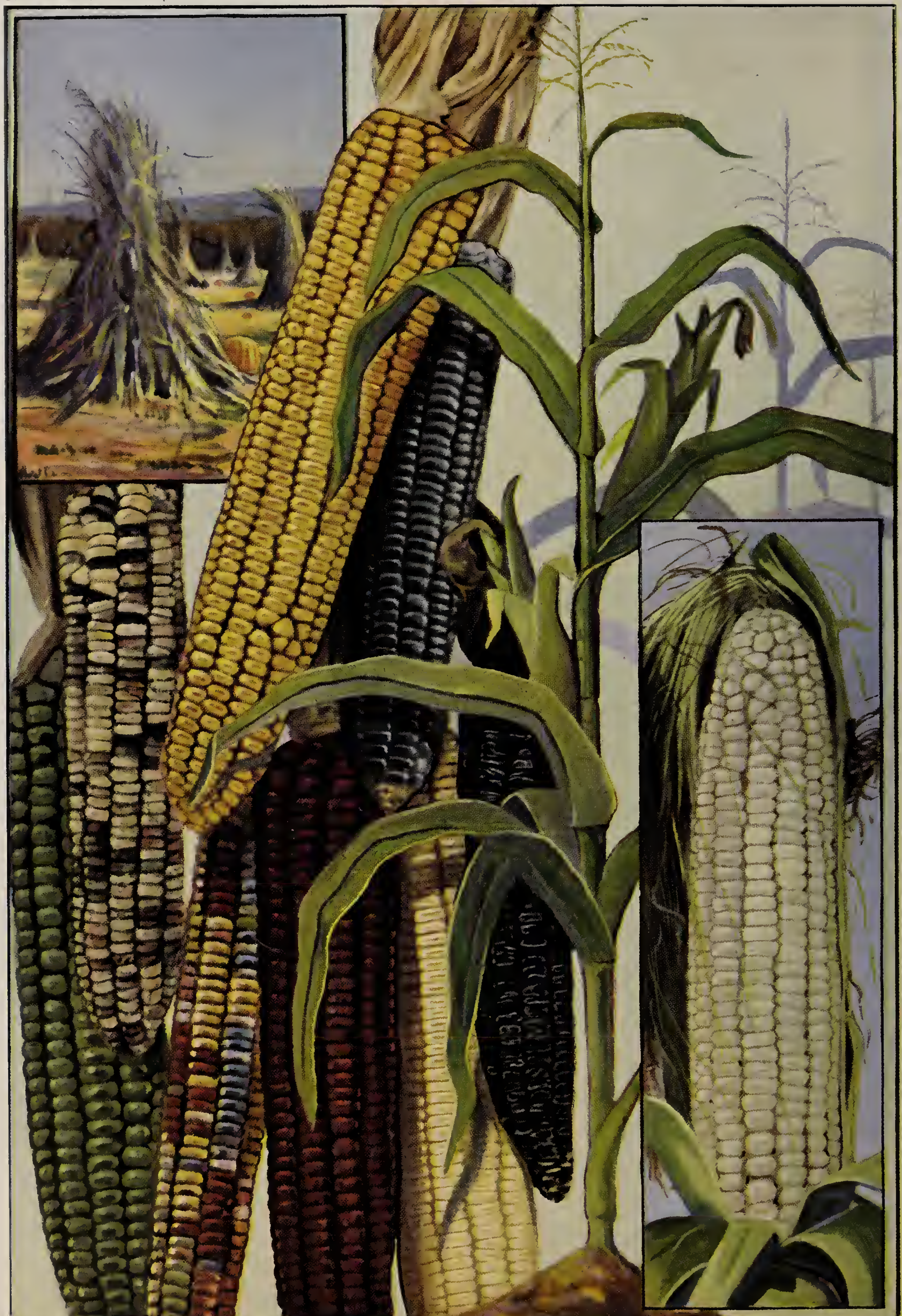
Sauté as a culinary term signifies "tossed." The food is "tossed" by moving the pan quickly backward and forward over a brisk fire. When applied to meats, it is practically the same as "dry frying." For articles such as French peas, the "tossing" is continued only long enough to heat them through.

COON, a colloquial form of Raccoon (which see).

COONTIE, or Koonti, or Indian Bread-root, a Florida species of the *Zamia* genus of sub-tropical and tropical palm or fern-style plants, whose starchy trunk-pith and rootstock yield a flour or meal resembling arrowroot, known locally both as "sago" and "Florida arrowroot." The raw product contains a poisonous element but this is dissipated by heat.

COPRA, the dried meat of the Coconut (which see).

COQUITO, or Wine-palm, a tall, tropical-American palm cultivated in southern California. Under favorable conditions, it reaches a maximum height of sixty feet. It is valued chiefly for its sap which, in South America, is boiled and then eaten as



INDIAN CORN, or MAIZE—Some of the many colors in which it was formerly found

The illustrations are a little less than one-half the length of fair specimens

"Palm honey" (*Miel de Palma*). The fruits—known as "monkey's coconuts" and by many other titles—are small, averaging only an inch or less in diameter, but they have the general style of the true coconut, with flesh of similar character and yielding a similar edible oil.

CORDON BLEU, or Blue Ribbon, a term applied to an especially competent cook, particularly if a woman. The "Blue Ribbon" originally represented the highest French order of knighthood and was first conferred upon a cook — a female — by King Louis XV at the suggestion of Madame du Barry.

CORDON ROUGE, or Red Ribbon, a culinary distinction granted by an English society to clever cooks, both men and women, and others who have invented valuable methods of preparing foods. It was originally the ribbon of the French order of St. Louis.

CORIANDER-SEED, the smooth, round, yellowish or brownish, seed-like fruit—a little smaller than peppercorns—borne by a small plant, native to the south of Europe and Asia Minor, now widely grown. It is used as a culinary flavor, especially for curries and pastries, and by Mexicans in soups and in the manufacture of confectionery. Simply sugar-coated (in white or other colors) the seeds constitute a popular Scotch candy.

CORN. The title "corn" is used in a general way to designate all the principal grains—as wheat and rye—but specifically applied in this country it refers to "Indian corn," or maize, the seed of the most beautiful and luxuriant of all grain grasses, and the most abundant in product. It is native to tropical America and was used as food by the Indians centuries before the era of Columbus, and probably by the civilization which antedated the Red Man.

The plant is an annual, and under favorable conditions reaches a great height—some varieties exceeding fifteen feet. Its pollen is scattered from the panicle which forms its head and is caught by its "silk"—the long, silky styles attached to the ovaries of the pistillate flowers which have developed on the (then) fleshy cob held in the axils of the side leaves of the stalk—the silk extending out from between the husks which sheathe the cob.

The greater part of the corn grown in the United States is of the Dent variety, subdivided into innumerable types but capable of a general grouping into two classes—yellow and white.

In the northern states and Canada, the shorter season requires the planting of the more quickly maturing Flint variety, but this is of the same general character and is used in the same ways.

The difference in appearance—the indented form of Dent grains and the smooth style of the Flints—is due to the different construction of the kernels. The horny layer, or hull, of Flint corn completely encloses its starchy endosperm. In the Dent the endosperm is exposed at the summit of the kernel, and produces the "dent" by shrinkage in drying.

The ears of Flint corn are typically slender and long (up to fifteen or more inches in length), with grain-rows few in number (eight or so) and the grains themselves very broad. Dent ears are stouter, with sixteen to twenty-four grain-rows. They are in some special strains as long as the longest Flint, but they average considerably shorter.

In the early days of the English colonies here, corn was not confined to yellow and white ears, with an occasional red variation, as to-day. Though yellow and white were even then the most common, they were interspersed with red, blue, olive, greenish, black, vari-colored, speckled, striped, etc.—a very showy mixture and blending of colors and tints! A group of such ears is shown on the color-page facing 151.

Corn is lower in protein than wheat and oats, but is fully equal in that respect to other grains and it surpasses many in the proportion of fat or oil. It does not make as good loaf-bread as wheat because of its smaller proportion of gliadin, but otherwise its use as a food ranks very high in national importance. Its main food-component—starch—is of excellent quality. It is enjoyed in a great diversity of styles—coarse ground into hominy, cornmeal, etc., and boiled as hominy, mush, or "hasty-pudding," or baked in various kinds of corn bread; converted into sirup; ground fine as cornstarch for puddings; eaten green—boiled with beans to make succotash or "on the cob," and canned for use when "green corn" is unobtainable—and very often preferably when it is. As corn-sugar and corn-sirup it also enters bread and confectionery, and many other articles of our national bill of fare, and it yields both cooking and salad oils. It finds its place, too, in many other noted dishes—among them the Irish "stirabout," the Italian polenta, and the Mexican tortilla and tamale. It is, further, the principal grain crop throughout South Africa—as "mealies" it is the natives' staple food—and it covers thousands of acres in India and other parts of the world.

The fear of pellagra as a result of corn eating may be entirely dismissed. Pellagra is, largely, the penalty of an inadequately balanced diet—of a lack of a proper variety of food. It is not due to any toxic property of corn.

The average annual crop in the United States is from two and a half to three billion bushels. This staggering total is variously utilized. Part of it is employed in the starch and brewery and other industries and part in the food products already mentioned, but a still greater quantity is transformed into meat—for corn is our most important live-stock food, rounding out the steer and putting fat on the hog. Nor should one forget that the ripe grain consumed by cattle—and its chopped or shredded stalks, or "dry fodder"—is supplemented by a big acreage devoted to corn sown and grown for harvesting green as ensilage—the entire plants, with their ears just short of ripeness, to be cut fine and stored in the tall, generally round, silos that are nowadays so noticeable a feature of farm buildings—there to undergo a mild fermentation (akin to that of the sauerkraut of the human diet), and to be fed as a much-liked, succulent ration particularly valuable when grass is scanty or its season past.

The grain may be divided into the germ (the oily part), the endosperm (the body of the kernel, consisting principally of starch, together with some gluten), and the hull, or "bran."

The germs are used in the manufacture of corn oil. The starch provides all the other edible manufactured products and numerous industrial products, especially laundry starches and dextrin—the latter substituting for gum arabic and extensively used in the textile trades. Dextrin is also the adhesive which affixes the postage stamp to your letter! The bran, mixed with the gluten separated from the starch, is used as cattle-food.

Of corns other than Dent and Flint the best known commercially are Sweet Corn —grown principally for canning and for green corn "on the cob," and Popcorn (which see).

Sweet corn is distinguished by its crinkled, semi-transparent appearance when dry. When cut for green corn, the kernels should be plump and well filled, but soft and milky. It should always be consumed as soon as possible after picking as it deteriorates rapidly in holding. The husks should be bright and fresh looking.

Ewing Galloway

A field of flint corn

CORN BREAD, an important article of food in the South, and in farm-life elsewhere, which deserves yet fuller recognition. To be enjoyed at its best, it should be served hot and should be freely buttered.

"Corn bread," specifically, is baked in a shallow pan in the oven. It may consist simply of cornmeal, a little lard or butter, salt, and water, or it may contain also one or more of several other ingredients—as wheat-flour, milk (fresh or sour) or buttermilk, eggs, sugar, baking powder or soda or yeast, etc. The famous "Creole corn bread," or "egg bread," is made with straight cornmeal—only the finest and whitest of white meal, never the yellow—buttermilk, butter, salt, egg yolks beaten very light, and egg whites whipped to a stiff froth.

Corn muffins and *Corn dodgers* are the same products in small size.

Corn pone is an alternative southern title for corn bread—used for both the plainest and the richest. It is from the Indian *pone, apone,* and *oppone,* all signifying "bread" made by cooking thin cakes of cornmeal in hot ashes.

Hoe cake was originally a plain cake, either of cornmeal or wheat-flour, so named because the old-time plantation "mammy" often cooked it on the broad blade of a cotton-hoe set over hot embers in front of a wood fire. The term is now applied also, and chiefly, to a richer "biscuit bread" of wheat-flour baked either on a griddle or in an oven, and popular in southern households for eating with a glass of milk or cream and as an accompaniment to fruit compotes.

Ash cake is a plain cornmeal cake baked by burying it in the hot wood ashes. When done, it is easily wiped clean of ashes (if the cook is a competent one).

Johnny-cake is to-day in the North a popular term for almost any kind of corn bread, and in the South chiefly for those of egg-enriched formulas, but by its first significance it was a plain cornmeal cake cooked on a griddle or baked in a flat pan in the ashes or on an oaken board before an open fire. In Australia, a johnny-cake is one of wheat-meal baked in ashes or fried in a pan.

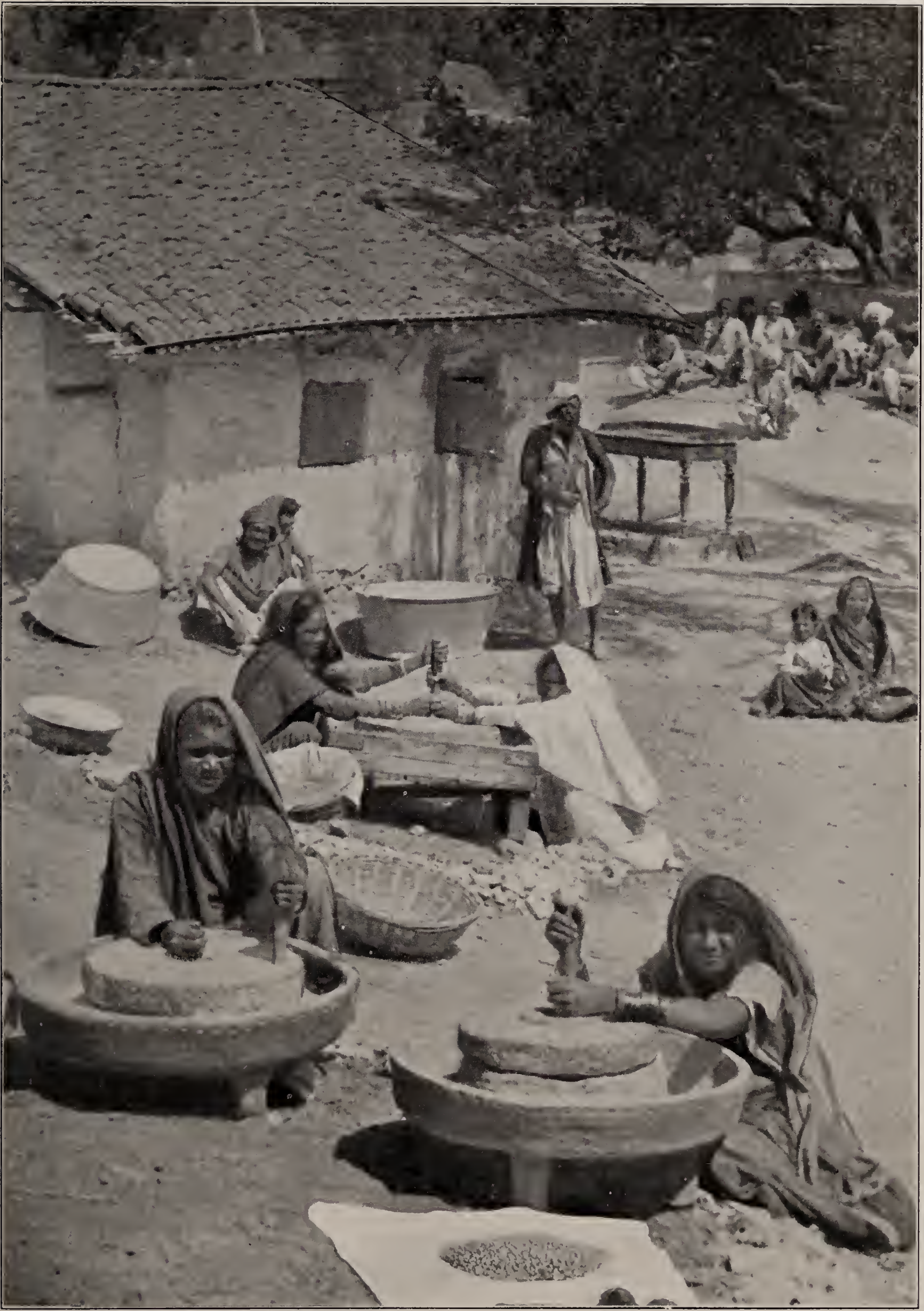
Steamed corn bread—wheat-flour, molasses, milk, and baking powder added to the cornmeal—is eaten rather as a pudding (with sweet sauces, etc.) than as bread.

CORNED BEEF, meat preserved with brine, saltpeter, etc. If of good grade, it is from the rump, chuck, and plate (see article on Beef). It should consist exclusively of meat cut from young cattle in good condition. If canned, it should be well trimmed, the skinny and connective tissues removed, and freed from gristle, bone, blood clots, and excessive fat. No soft fat at all should be included. It should not contain more than about one thirty-second of jelly—which should be made only from soup stock and bones—and should not show excessive liquor when opened.

The word "corned" originally signified meat preserved by dry-salting—by being sprinkled with or embedded in "corns of salt" (i.e., coarse salt) instead of being preserved by brining—the Old-English word "corn" then being largely synonymous with the "grain" of Old-French derivation—one spoke of a "corn" of sugar or sand, etc., as to-day one still says a "grain" of sugar or sand.

In time, as dry-salting of meat fell away in use, the term "corning" came to signify brining—perhaps because the original "corned meat," when in good condition, held more of the true meat flavor than the "brined meat," and the title "corned" was consequently more pleasing to the ear.

Corned Beef Hash, as put up in canned form, consists of about 50% corned beef and 50% vegetables, the latter chiefly or exclusively potatoes and onions.



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Villagers grinding corn, India

CORN-FLOUR, white cornmeal, ground fine and bolted. It is used in the manufacture of many pancake-flour mixtures, and also to some extent by bakers and confectioners for dusting purposes. English "corn flour" is our CORNSTARCH.

CORNMEAL, the ground grain. The principal divisions are into water-ground (or "old process") and granulated (or "new process").

Water-ground cornmeal is usually made of whole corn that has not been kiln-dried. It is milled between stones, and heating of the grain or meal is avoided. It is excellent for simple forms of corn bread and carries the full value and flavor of the grain, but because of its fat content it must be used fresh. It quickly deteriorates in warm weather and in heated houses. In many country homes the careful housewife puts a large stone in the center of the firkin to prevent "heating."

Granulated cornmeal, in all sizes from CORN-FLOUR (which see) to coarse, is from de-germed, kiln-dried corn, milled between rollers (the process engendering a high degree of heat) and then bolted. It "raises" better than the water-ground, blends more satisfactorily with wheat-flour, and keeps better.

Both yellow and white corn-meal are consumed in the northern states, but the former is seldom seen in the South, for there the white meal—of either process—is almost universally preferred.

CORN OIL, used in various degrees of refinement as a cooking and edible oil, and industrially, is made from the germs of the grain. These are dried, ground, and pressed into cakes, to be later subjected to high pressure, the oil running out into collecting tanks. When pure it is golden yellow and marked by a pleasing taste and aroma somewhat suggestive of freshly ground grain.

CORN-SALAD, also called *Fetticus, Field-salad, Fat-hen, Lamb's-lettuce, Lamb's-quarter, Marsh-salad, Hog-salad,* and *Doucette,* a salad-plant generally distinguished by spoon-shaped leaves and found in numerous varieties. Several kinds form "rosettes," and a few form heads. The rosette style is that usually grown here. It makes good salad mixed with lettuce, the outer stalks of celery, or sliced beets, giving a slightly bitter taste which is generally well liked. It is easily grown and will yield the earliest and latest of salad crops. It takes its chief name from its long naturalization in the "corn fields" (the wheat and rye fields) of Europe.

Italian corn-salad is a distinct species with hairy and lighter-colored leaves.

CORN-SIRUP, or Commercial Glucose, or Sirup Glucose, a sirupy product, varying in color from water-clear to amber, obtained by the partial hydrolysis of starch. It contains about two-thirds sugars (glucose, about 20%, and maltose, about 45%) and one-third gum (dextrin). For GLUCOSE and MALTOSE see articles under their own heads. In this country, Indian corn, or maize, is chiefly used. Europe generally employs potato starch—hence the alternative title there of "potato sirup."

The principal American food uses are as table-sirup—then being generally colored with caramel and flavored with cane-sirup or maple-sirup or molasses; in bakery goods; and in the manufacture of candy and cheap jams. It is especially valuable in candy-making. It is not as sweet as ordinary sugar, but it possesses distinct and valuable qualities of its own—it does not readily crystallize and it does not "grain" or disintegrate—imparting instead the softness and elasticity indispensable for special varieties such as caramels. Furthermore, like ordinary sugar, it has no flavor other than that of sweetness and therefore does not impair any flavor incorporated with it.

In manufacture, raw starch is mixed with water to form what is known as "starch-milk," then a small quantity of hydrochloric (muriatic) acid is added, and the whole is run into "converters"—large, closed, copper vessels—where steam is applied under about fifty pounds' pressure, quickly changing the starch into crude "commercial glucose." The product is next run into a tank where alkali is added to neutralize the acid used, and the liquid is then filtered and decolorized and finally evaporated to the proper consistence in vacuum-pans.

High-grade corn-sirup, carefully and correctly made, is a wholesome and desirable food product—its process of manufacture being analogous to the digestive processes of the human body.

The occidental industry of "commercial glucose" finds its origin in Napoleon's continental blockade and the English counter-proclamation. The same European scarcity of sugar which founded the beet-sugar industry (see SUGAR) resulted in the devising of the first "glucose" conversion of starch. The establishment of the industry on an important footing was, however, delayed for several decades. The East had long anticipated Europe—Japan has been converting rice, millet, and bean starches into sirups and sugars for hundreds—probably thousands—of years, using, though, the malt method as in our MALT-SIRUP.

CORNSTARCH, used in making puddings, etc., is manufactured from the raw starch of corn by breaking it up, washing and siphoning repeatedly, running over sieves of fine silk which remove any particles of fiber still adhering, putting through various other refining processes, drying until the content of water has been reduced to only about 10%, and finally pulverizing. It is one of the most readily and most easily digested of starch foods. Even in England, there known as "corn flour," maizena, and "Oswego," it has in recent years largely displaced the formerly overrated tropical starches (as arrowroot) in invalid cookery.

CORN-SUGAR, or Starch-sugar, or Commercial Dextrose, or Solid Glucose, made in the same manner as CORN-SIRUP (which see) except that more hydrolizing acid is employed and that evaporation is carried on for a longer time. It is used in the manufacture of caramel (sugar coloring), beer, vinegar, etc.

United States Standard starch-sugar, or brewer's-sugar, is a hard, waxy substance, containing not less than 70% of true glucose, or dextrose. Climax, or 80%, starch-sugar contains not less than 80%. Anhydrous starch-sugar is a coarsely granular sugar that looks like yellow cornmeal and contains not less than 95%.

The corn sugar of the early Mexicans and Peruvians was an entirely different product obtained by the evaporation of the juice from the stalks of sweet corn.

COS LETTUCE. See the general article on LETTUCE.

COSTERMONGER, a term applied to a person selling any kind of food in the street from barrows or carts. The title is a corruption of "costard monger," *costard* being an old English name for "apple" (first applied to a special variety, but later to any kind), and *monger* signifying a petty trader or trafficker.

COTTONSEED-FLOUR. The ground whole cottonseed has in recent years attracted attention as a potential human food, plentiful and of exceptional richness. Its milled and bolted flour contains an average of about 50% assimilable protein and 10 to 11% fat. It may be acceptably prepared in numerous ways—among others it blends well with wheat or other flour in bread-making—especially in steamed bread, gingerbread, etc. Its use cannot, however, be recommended at the present time because of the occasionally toxic effect of its "gossypol" content—an effect which has been noted in the feeding of animals even when the diet has been carefully "balanced." It is probable that the near future will disclose means to eradicate the gossypol or to nullify its toxicity. Heating is the method generally advocated, but this has not yet been proved consistently efficacious.

COTTONSEED OIL. A cottonseed comes from the gin with (in most varieties) short, soft lint still adhering to its shell. When freed from the lint it somewhat resembles a small coffee-bean in size and form. A hundred pounds of the seed will yield about sixteen pounds of crude oil, thirty-three pounds of lint and hulls, and forty-seven pounds of oil cake, or "cottonseed meal." The lint is marketed as cotton batting, raw material for paper pulp, etc.; the hulls are generally used as cattle-food, and occasionally as fuel,

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Cotton blossoms and seed-bolls (before and after opening)

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Gathering cotton, Louisiana

and (or, preferably, their ashes) as fertilizer; and the oil cake, or meal, as fertilizer and cattle-food.

The refined oil serves as an excellent and inexpensive substitute for olive oil in cooking. It is also largely used in the manufacture of imitation butter, as a salad oil, and for packing sardines and other products. It is readily absorbed by the human system. ''Summer yellow'' is the oil without the removal of the stearin; ''winter yellow'' is after its removal—which is accomplished by a refrigerating process. Either kind can be reduced to a pale yellow by heating with fuller's earth. ''Choice'' oil is of a light lemon color and mild and neutral in flavor. ''Prime'' oil is slightly darker and is sweet in flavor but without any seedy taste. The stearin used in the manufacture of cooking compounds is obtained by separation from the refined oil after the bleaching step. The lower grades of oil and the residue separated in refining are employed for various mechanical purposes and in soap manufacture.

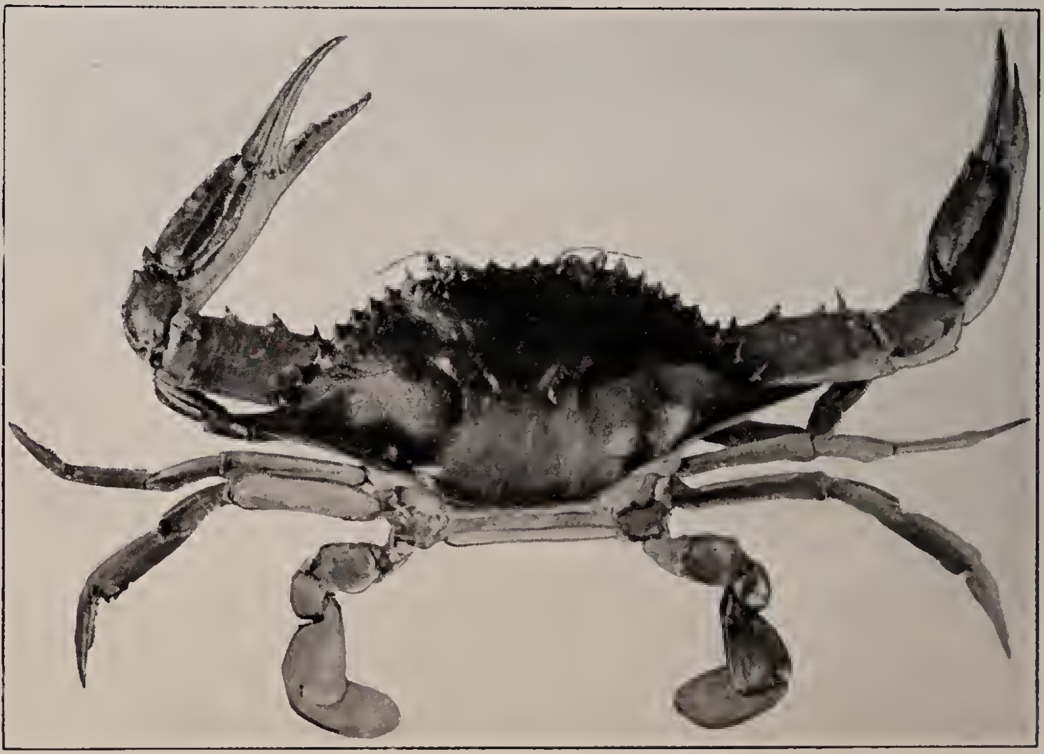
The annual average value of the oil obtained from the American cotton crop runs into several hundreds of millions of dollars, yet less than three generations ago the bulk of the seed was treated as a waste article and considered troublesome because of the difficulty of disposing of it. The real importance of the present extensive industry commenced with the still more recent date of 1855, when improved methods of decorticating the seed were invented.

COUMARIN, the flavoring substance of the TONKA-BEAN (which see). It is also found in sweet woodruff and some sweet clovers, or melilots—see the reference to melilot coumarin in the description of *Sap Sago* in the article on CHEESE.

COWPEAS. See page 30, in the general article on the BEAN.

COWSLIP, or Marsh Marigold. See reference in the MARIGOLD article.

CRAB, the most popular of crustaceans and freely obtainable by many who cannot afford the (now) aristocratic lobster. It is found in great variety, some existing entirely in the sea, others in shallow water, both fresh and salt, and yet others on land. They multiply rapidly—a female may produce as many as three million eggs—and are in season all the year. At the mouth of the Chesapeake the beach is often covered for miles with crabs driven ashore by the wind.



Keystone View Co.

A blue crab (much reduced)

In the eastern states the type chiefly consumed fresh is the Blue Crab of the Atlantic Coast. We also enjoy as a garnish the tiny oyster-crab, which makes its home within the shells of the oyster and other bivalves. The hermit-crab is another familiar small creature—its custom is to appropriate an empty single shell, carrying it about with him as a portable dwelling.

As food, the two important divisions of Blue Crab existence are into hard crabs and soft-shelled crabs. Hard crabs are the creatures in their ripened shell-armor—then greyish green to olive green on the upper parts, and blue below and on the claws and other (smaller) legs. The meat principally eaten is that from the inner top of the back and the claws—less easily obtained than that of the lobster and in smaller quantity, but a good deal sweeter and more delicate. The center of the body is filled mostly with the liver—a soft, yellow substance which is not generally consumed though connoisseurs consider it a delicacy, especially when mixed with the eggs, or ''coral.''

Soft-shelled crabs are those which have just cast off their old shells in favor of the new, tender coverings which they have developed underneath—the new shells, unlike the old, being markedly blue on top also. They are in season from April or May to the middle of October. They come to market packed in seaweed and should be kept moist and in such a position that the gills are always wet.

A ''buster,'' or ''shedder,'' crab is one whose old shell is loose but has not yet come off. This is considered the choicest stage by many epicures.

The male Blue Crab may be known by its long, white, narrow tail, or apron, curled around its under-part. The female has a broad, brownish tail.

The chief crabs of the Pacific Coast are the Dungeness and the big Red.

To cook a crab by putting it alive into cold water and then gradually bringing the water to the boiling point, is an entirely unnecessary cruelty. It does not at all improve it for eating. The flesh is finer—whiter, sweeter, and drier—if the crab is plunged into *boiling* water.

See also the color-page of Shellfish, facing 288.

Canned Crab-meat is a convenient and desirable article for salad and similar purposes. The best packing is that in which the tender white ''lump'' pieces predominate or are exclusively used. Other grades consist chiefly of the smaller, but also very delicate, ''flakes'' and claw-meat. An increasing quantity is imported from Japan—the meat being firmer and of a more pronounced white than that of our domestic crabs—though not so sweet. The Japanese crab attains a very large size—up to and in excess of twenty pounds—its outstretched claws spanning ten feet or more.

The crab catch on the Chesapeake and the canning of the meat are thus described:

''Each of the boats carries six hundred feet of lines, anchors, buoys, etc. Small lateral lines are attached to the main line at intervals of eighteen inches. To these the bait is attached—tripe generally being used. At stated periods the boats are visited by a larger one which collects the catch and carries it to the factory. There the crabs are carefully assorted, and any that may have died during the trip are thrown out. Those that pass the inspection are placed in latticed cars, each holding two hundred and fifty dozens. The cars are run into steaming tanks and sixty pounds of steam is instantly turned on. Each individual crab, with one spasmodic twist, immediately relinquishes all earthly ambitions and dies—that man may profit by his involuntary sacrifice. The steaming process completed, the crabs are passed to the 'strippers.' These, standing before the trough of clear, cold water, dexterously remove the top shell, viscera, etc., and after carefully washing each crab pass it to the pickers, who occupy long tables running the length of the house. The meat is here picked out into half-gallon buckets to the tune of 'We'll Put John on the Island!' and 'I'm Traveling to My Grave,' a hundred colored voices taking up the refrain. Afterwards it is weighed and carefully examined to see that it is clear of shell—if not up to the standard, it is returned to the picker. From the weigher it goes to the canning-room, where it is packed in one and two pound cans, and then passed to the process room, to be sealed and cooked. Every can is afterward examined to see that it is perfect. If found so, it is varnished, wrapped in a handsome label, and packed two dozen in a case, ready for market."

CRAB-APPLES. In popular significance, the word "crab-apple" is applied to any small, sour apple, especially in Europe to the fruits of wild trees of the species (*Pyrus malus*) which has given us the apples of common cultivation. The true crab of the botanist, the small, hard Siberian Crab, constitutes a different species—*P. baccata.* Large crab-apples are chiefly hybrids of the cultivated Malus and Baccata. There are two important native crab-apples—the "Prairie-states," or "Western" (*P. ioensis*), among whose hybrids with the common apple is the comparatively big Soulard; and the "Eastern-states" (*P. coronaria*).

Crab-apples vary from very small, through an average of one inch or so in diameter, to some types considerably larger. Their harsh, acid taste renders them almost inedible when raw, but they make delicious preserves, marmalades, jellies, and spiced pickles.

CRACKERS. See Biscuits and Crackers.

CRACKNEL, or Egg Biscuit, a high-class plain biscuit made in various shapes, all thicker than the average biscuit but extremely light, very finely grained, and of a peculiarly smooth and shiny surface. As only first-grade wheat-flour, eggs, and a small percentage of sugar enter into their manufacture—no water or other moistening being added—they are valued as a delicate and nutritious food.

CRANBERRY (see the color-page facing 42), a small, red, acid fruit largely used for making tarts, sauces, and jelly. It contains a considerable percentage of citric acid and has high value as an antiscorbutic.

The two most important species—both found wild in the United States, and both of them creeping plants bearing their fruits on upright shoots—are the Small (*Vaccinium oxycoccus*), which is the Old World cranberry, and the Large (*V. macrocarpon*). It is the latter—in numerous varieties—which is cultivated here. Dark-colored berries are generally considered the best. In shape there are four principal styles—the cherry (or round), the olive, the bugle, and the bell (or pear-shaped).

Cranberries were first cultivated at Cape Cod, and Massachusetts is still the largest producing state. The markets also receive large quantities from New Jersey and Wisconsin, and small supplies from several other states. The soil for producing them must be of peaty or alluvial character with an abundant supply of water held by drainage from eight to twelve inches below the surface, and capable of being flooded at will—throughout the winter to protect the roots from freezing, and at other times for the destruction of insects, etc. In Massachusetts, and in some parts of other states, the surface of the soil is covered with sand for the retention of moisture and the easier elimination of grass and weeds.

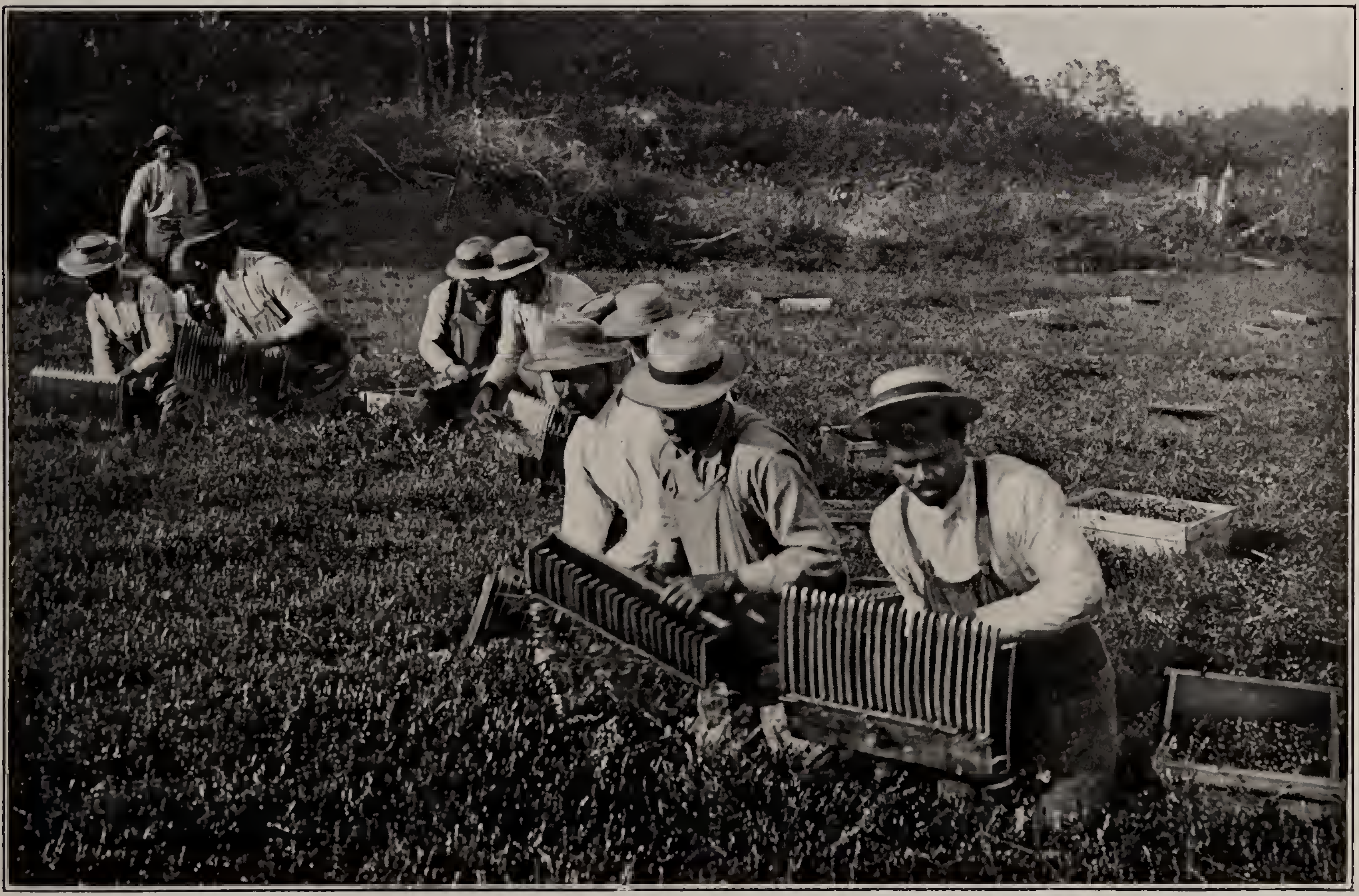
To a steadily increasing extent the crop is harvested by comb-scoops and similar devices which strip the fruits from the shoots. When conditions make it practicable the better method is to comb them off with the extended fingers. This does less injury to both fruits and plant.

The yield per acre varies greatly—fifty barrels of about 100 quarts each is a good crop, but is frequently exceeded.

More money has been made and more lost in the culture of cranberries than in almost any other small fruit. Too frequently the crop is a total failure. The cranberry worm devastates the bushes, or an early frost ruins the berries.

In New England, and sometimes further south, market cranberries often include the small, dark red berries of *V. vitis-idæa,* which flourishes wild throughout the Dominion of Canada, and is variously known as mountain-berry, ling-berry, red whortleberry, partridge-berry, foxberry, wolfberry, low-bush cranberry. It is a valuable little fruit and upon occasion has served—and still serves—as a life-saving food for trappers and Indians.

Cranberries are at times so cheap that it is interesting to know that if they have been picked dry, and all soft berries are removed, they can be kept sound for months by packing in well-ventilated boxes and storing in a cool, well-ventilated place protected from frost; or by putting them in jars, covering with water, and setting in a cool place (occasionally replenishing the water). If the latter method is employed,



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Gathering cranberries near Cape Cod, Mass.

they must be used quickly after removing from the water, as they are inclined to soften and deteriorate.

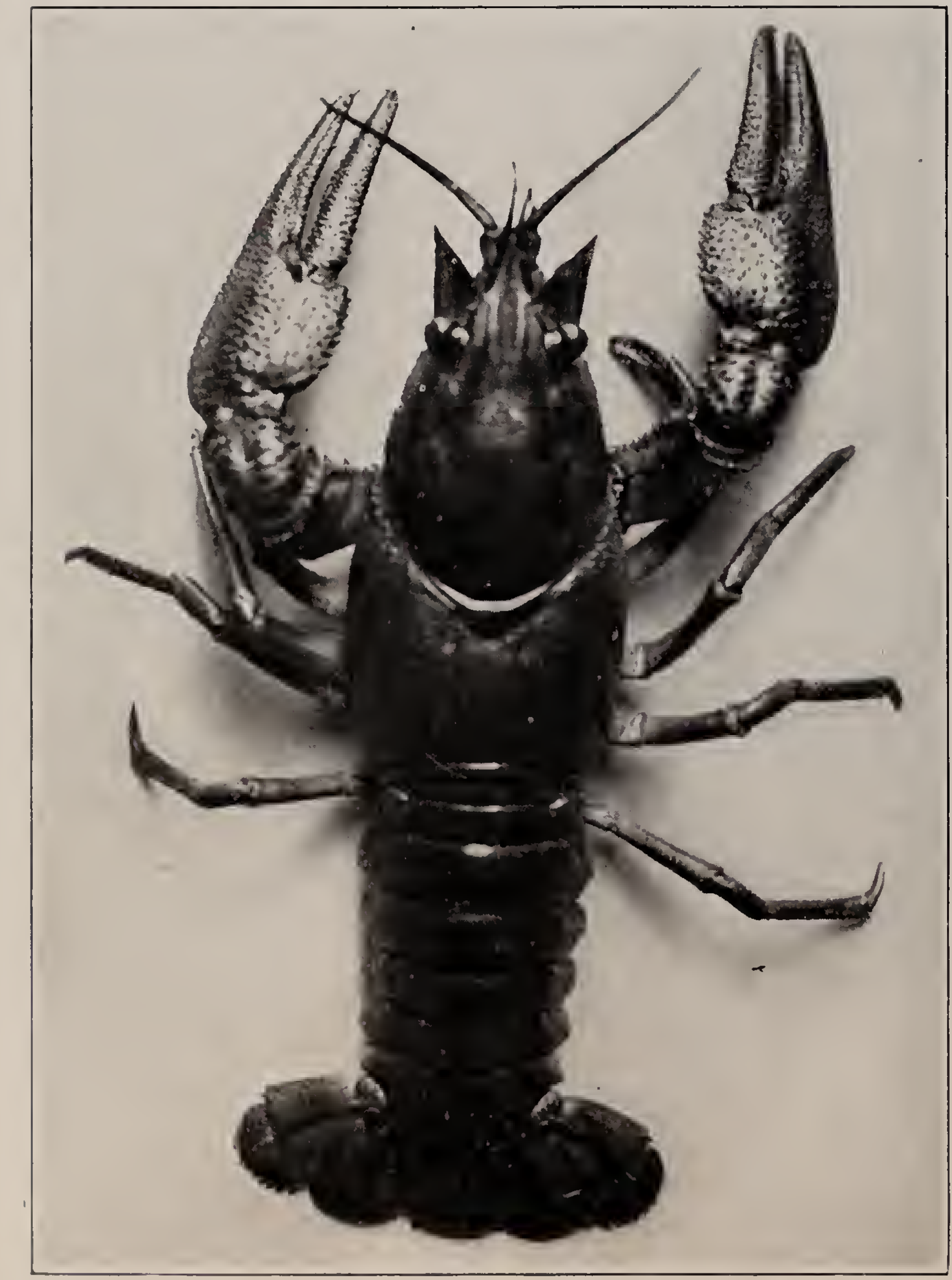
Medium-sized berries are generally more solid and therefore keep better than those that are especially large. Great care should be taken in cool weather to avoid buying any which have been bitten by frost.

Dried cranberries are sold to a limited extent. They are thoroughly satisfactory, the sauce made from them differing little from that made from fresh fruit.

Enameled or aluminum utensils should be used for cooking.

The fruit of the "high-bush cranberry," or "cranberry-tree," which attains a height of eight to twelve feet, also resembles the ordinary cranberry in flavor and general appearance but is smaller and contains only one seed. It is not related to the cranberry proper, belonging instead to the snowball-bush genus.

CRAPPIE (*Pomoxis annularis*), a widely distributed, fresh-water pan-fish, of silvery light green, blotched or barred with dark green. Twelve inches is its average maximum length. Its flesh may be muddy in flavor if the water is very warm and muddy, but under other conditions it is excellent both in texture and taste. Locally, it is known by many other names.



Jacques Boyer, Paris

The "red-clawed" crayfish

CRAYFISH, or Crawfish, a small, fresh-water, lobster-style crustacean, found plentifully in our rivers, and in season from September to April. The flesh from its tail is served in many entrées and salads.

The crayfishes of the eastern and central states (see the color-page facing 288) are of the genus *Cambarus* and have an average market length of three to four inches. The larger and very handsome Pacific Coast varieties—reaching six inches or more—are of the *Astacus* genus, which includes also the most highly esteemed European type (shown in the accompanying illustration)—the German *Edelkrebs,* the French *écrevisse à pattes rouges,* the "red clawed crayfish"—so styled because of the coloring of the under-side of its pincers.

CREAM, the fatty element of milk. In rich milk the proportion varies from one-fifth to one-third. That of milk sold by different dealers may usually be ascertained by putting a sample of each in bottles or tubes and letting them stand undisturbed for forty-eight hours—the difference in color will distinguish the cream from the milk, and show the relative quantities contained. Most of the cream sold as such is now separated from the milk by centrifugal separators instead of allowing it to rise.

By United States standards the proportion of milk-fat in cream must be not less than 18%. State laws fix the milk-fat at various figures—from 15% to 20%. Good cream by natural separation will average about 22%. By centrifugal separation it can be made to vary from very "light," as low as 9%, to very "heavy," as high as 55%.

CREAM-NUT, one of several names for the Brazil-nut (which see).

CREAM OF TARTAR, refined argol, or tartar, a substance found in the juice of grapes and obtained as a precipitate after fermentation. It has an acid, cooling flavor, and is used in the preparation of summer drinks (see remarks in the article on Tartaric Acid), as an aid in raising bread and cakes, etc. Its sale by grocers has been greatly lessened by the popular use of baking powders.

There are usually from one to three inches of dark "grounds," or lees, at the bottom of a full barrel of new wine after it has stood long enough to settle. After a certain time, the lees are removed in a cake and then dried and broken up till they are about the size of common sand and of a pinkish tinge, like the tailings of a Nevada quartz mill. This product is sold to tartar manufacturers.

The first step in refining is the cooking of the powdered lees in vats of hot water for about two hours, the clear liquid being then run off into shallow receivers and permitted to crystallize. The crystals are re-dissolved in hot water and decolorized with egg-albumin or pipe-clay, then filtered and again permitted to crystallize.

Cream of tartar takes its name from the layer of minute crystals that form on the surface of the water solution as it cools.

CRÊME (French). (1) Cream. (2) A white sauce. (3) See in the article on Soup.

CRESCENTS. (1) Rolls of Vienna-bread dough in crescent shape. (2) Shapes of Genoa cake with water icing of various colors. (3) A French bonbon.

CRESS, a name applied to a number of pungent-flavored plants of the mustard family, used as a condiment, for garnishing, and in salads. The best and most characteristic are watercress and garden-cress, or "peppergrass" (*Lepidium sativum*).

Watercress is separately treated under its own head.

The leaves of the common types of garden-cress are much divided and frequently curled. Those of the broad-leaved styles have the blade entire except for occasional notches along the edges. They are pulled or cut when very young and tender, preferably while still in the seed-leaf.

In the market-gardens surrounding London, garden-cress is grown in enormous quantities. It is generally sown together with White mustard (see *Mustard and Cress* in the article on Mustard Salads).

A third cress of merit, but of minor importance, is the native wild peppergrass (*L. virginicum*).

CROAKER (*Micropogon undulatus*), a desirable pan-fish common along both the Atlantic and Gulf coasts and most abundant in bays and bayous and grassy shallow waters. It is, ordinarily, yellowish in upper coloring, with dusky and dark-brown bars and spots. Its name comes from a "croaking" noise produced by the action of its air-bladder. Large specimens reach twelve inches in length.

CROSS BUNS, small, circular cakes or buns, so called because marked with the cross, especially baked in many sections for consumption on Good Friday. They are popularly known as "Hot Cross Buns" and as such are in many English towns cried about the streets on the morning of Good Friday.

CROUSTADES, cases or shells of biscuit or pastry or similar composition, made in various shapes and used for the service of dishes such as creamed fish, and some entrées and desserts.

CROWN OF JAPAN. See Japanese Artichoke.

"CROWNS." The word "crown" as commercially applied to dates, figs, raisins, and some other food products, signifies "grade," or "quality," or size of spread. The higher the number used as a prefix, the choicer the grade—six-crown raisins being, for example, a little choicer and larger than five-crowns.

CRULLERS. See Doughnuts.

CRUMPET, an English batter-cake of flour, eggs, milk, butter, and baking powder (or yeast), etc., generally bakery-made. In the home, this bakery-made crumpet is prepared for breakfast or tea by toasting and a bountiful application of butter, appearing at table thin, soft, and woolly—it has been described as resembling "a blanket soaked in butter!"

CRUSTACEANS, a large division of the animal kingdom which includes crabs, crayfish, lobsters, prawns, and shrimps. (See under their heads, and also the article on Shellfish.)

CRYSTALLIZED FRUIT. See Candied Fruit.

CUCUMBER, the fruit of a creeping plant, long and widely cultivated, and one of the most popular of salad vegetables. It is somewhat indigestible, but when properly prepared and dressed—with plenty of oil—it may be eaten without fear of evil consequences. The rind is considered poisonous, so paring should thoroughly remove every trace of green.

Cucumbers when marketed should be crisp and firm to the touch. For sale fresh, they are selected according to both ripeness and size, the latter varying greatly with different strains. For general pickling they are gathered when from two to five inches long. The most desirable for the purpose are, however, those still smaller—of only one or two days' growth, and measuring one to two inches. Small pickled cucumbers are known as "gherkins" but that title is better reserved for the true West-Indian gherkins (see Gherkins).

CUCUMBERS
Slightly Reduced

The English cucumber, of which there is a limited sale in eastern markets, is commonly much longer than the American—often three feet in length—more uniformly green, and with very little seed.

In England and on the Continent, cucumbers are well liked boiled in thick sections and served with hot butter or cream sauce.

The snake, or serpent, cucumber, is a melon (see SNAKE-MELON).

See also DILL PICKLES.

CUMIN, an herb of the caraway type producing seeds of aromatic odor and flavor which are popular in Europe and Asia but are little used here except in curry powders. They are particularly well liked in Germany for flavoring bread, in Holland for cheese, and in Norway for anchovies—and also, generally, for addition to soups, pastry, and pickles. In the Middle Ages cumin was one of the most widely grown of European spices.

CUMQUAT, another spelling for KUMQUAT (which see).

CURCUMA, an herbaceous genus which includes the turmeric-plant (see TURMERIC) and others yielding "East-Indian arrowroot."

CURRANTS. Two fruits, entirely different except in size, are known as "currants"—one used fresh and the other dried.

The fresh currant—a small, acid berry—is the fruit of a bush resembling the gooseberry bush. It is sometimes eaten raw but is principally consumed in the form of jelly, jam, and preserves, in pies, etc., and made into sirup for summer drinks. The most common type is the red currant. "Green currants" are red currants gathered for cooking before they are ripe, then distinguished by a peculiar tartness. The white currant is a similar variety produced by cultivation—it is less acid and consequently

London Red London Market White "grape" Transparent Pomona Moore's Select

SIX CHOICE VARIETIES OF CURRANTS

more generally liked for eating raw. The black currant is a separate type and of different flavor—but is similarly employed. It is especially good as jam. (See also references in Fruit Juices and Fruit Sirups, and the color-page facing 42.)

The dried currant, extensively used in cakes, is a small, seedless "raisin," the sweet, highly flavored fruit of a variety of grape grown principally in the Grecian islands of Zante (hence the term "Zante currants"), Cephalonia, and Ithaca, and in the vicinity of Patras. The fresh ripe fruit is also locally employed in wine manufacture.

The title "currant" is a corruption of Corinth, the name of the now unimportant Greek town of Gortho at the time when it was one of the most prosperous of Mediterranean cities. During the middle ages, currants were known as *raisins de Corauntz.*

CURRY POWDER (or Curry Paste), a condiment so highly seasoned that only within recent years has it obtained a substantial foothold in temperate climates though it has been extensively used in India and other eastern countries for many generations. In India and Ceylon it commonly consists of black and cayenne peppers, and a number of spices—as nutmeg, cinnamon, and cloves—made into a powder or paste with turmeric. That sold here usually contains turmeric, coriander seed, black and cayenne peppers, fenugreek-seed, cumin, ginger, and lime juice. It is retailed in packets, jars, and bottles.

In India and Ceylon, curry sauces are added to many dishes—generally a few minutes before the completion of cooking or before serving. Meats, poultry, fish, and vegetables—all are so treated—but the dishes which are considered especially suitable are those which consist chiefly of, or at least include, rice.

International

Grinding curry spices, India

The "finishing," or seasoning, with curry was at one time an epicurean rite of English army circles in India, and was frequently performed at the table by the host or some other member of the party, many officers priding themselves on the special combinations of spices, etc., that they had learned or invented, just as in every country epicures pride themselves on their ability in making a salad or sauce.

Curry is best kept in a bottle or jar, tightly corked or stoppered.

CUSK, a fish about the same size as the cod, with flesh similar but inferior, sold fresh and salted.

CUSTARD APPLE, Anona, Bullock's Heart, popular titles of a tropical fruit (*Annona reticulata*) somewhat resembling the northern papaw. Its genus includes the sweet-sop, sour-sop, and cherimoya. It is inclined to heart-shaped, with a maximum diameter of three to five inches, and a smooth, reddish or reddish-brown skin marked by impressed lines into rhomboids or hexagons. The pulp is sweet but insipid, and very soft. It thrives in southern Florida, the tree being a free grower and readily naturalized.

CUTTLEFISH. See SQUID.

DAB, a title applied to several fishes of the flounder genus. Among the best are the Alaska of the northern Pacific and the "rusty" and "sand" (or "rough") dabs of the North Atlantic. All of these are good food-fishes, but the first two are small.

DAMSON, a general name for small-leaved, small-fruited plums—the form to which the common plums generally revert when they run wild. The typical orchard damson is oval, blue or "black," and of firm, juicy, amber flesh. It is delicious cooked—for filling pies, etc., and as a thick preserve—but is generally too astringent to be enjoyed raw.

DANDELION, one of the most common and familiar of spring plants, and entitled to much higher place than it at present holds in general estimation here. Perhaps because of excessive familiarity with it as a weed, and partly also in some sections because it is regarded as of essentially medicinal properties, the average person ignores its manifold virtues and possibilities as a salad-plant, alone or with others, but John Evelyn placed it among his famous seventy-three salad herbs and European gardeners and cooks have made it fashionable on the other side of the Atlantic. In this country, also, it is now cultivated by some eastern market-gardeners, being raised in hothouses between seasons. The varieties grown are generally improved large-leaved types, some of them beautifully curled.

The ordinary green leaves are best used as greens—in any style suitable for spinach—and are particularly pleasing to many palates if cooked with an equal quantity of sorrel. They should be cut young, though even mature leaves of the common wild dandelion will serve acceptably if washed and macerated in several waters to remove any undesirable excess of bitterness.

The choicest result—delicious, crisp, white leaves of high salad merit—is secured by blanching young garden plants—tying around, and covering with sand or otherwise—or from strong roots potted and set to grow in a warm, dark cellar, the shoots then resembling Barbe de Capucin (see CHICORY, ETC., AS VEGETABLES AND SALADS).

In addition to all the ordinary dietetic merits of greens, the dandelion is especially rich in iron (see FOOD VALUES).

"Dandelion coffee" and "dandelion chocolate" are made from the roasted and ground root. The "coffee" is a mixture of ordinary coffee and dandelion root powder, or extract. The "chocolate" contains one-fifth chocolate and four-fifths root.

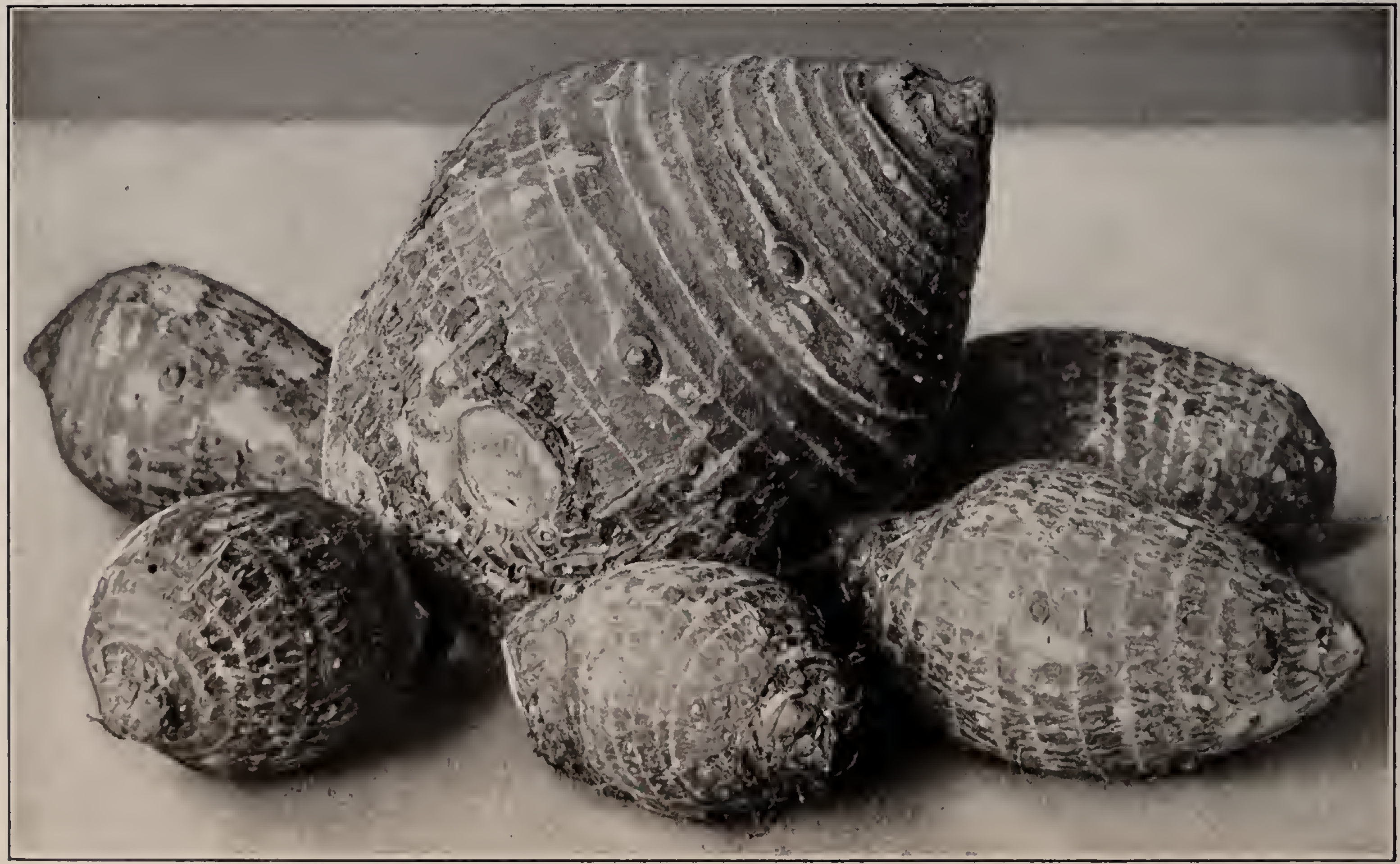
DASHEEN, or Trinidad Dasheen, a fine-flavored variety of the taro group of the *Colocasia* genus, brought in from Trinidad, whose large, underground bulbs, or corms, and younger, smaller tubers, or cormels, have become established as a promising agricultural crop in the southern states—both to supplement the potato and as a substitute in regions where the potato does not grow satisfactorily. The plant is of the ''elephant ear'' type (it is closely related to the decorative plant thus known) and on suitable soil—moist, but well drained, rich, sandy loam—it gives a large crop to the acre.

The corms (one or more to a plant) weigh from one to six pounds each; the lateral tubers, of considerable number, are about the size of a hen's egg or larger. Both corms and tubers are of the same general character, and both show (when raw) white flesh enclosed in a brown, fibrous coat. They may be prepared in any way suitable for potatoes, except that they do not lend themselves well to mashing. They should be served promptly after coming from the pot or oven. The cooked flesh varies from creamy or greyish white to light violet, and is (usually) of mealy texture and pleasing nutty flavor.

The food value also is much the same as that of the potato with a little sugar added, the percentages of carbohydrates, etc., being however higher because of the smaller water content. It is readily assimilable.

A lesser use is the forcing of blanched shoots from large corms. They are very tender and have a flavor resembling that of the common mushroom. Their defect is an excess of acridity, but this can be removed by boiling with salted water, followed by prompt draining.

Dasheens are best stored in a dark, well-ventilated place of about 50° Fahr.



Brown Bros.

Dasheens—a central corm and smaller cormels

DATES

DATE, the fruit of the date-palm, one of the principal sources of natural wealth in Persia, Arabia, Mesopotamia, and northern Africa. The wood and leaves of the palm are used in every imaginable way, just as natives in other parts of the world use those of the coconut, and the fruit, fresh or dried, frequently serves the Arab as his only food.

The palm commences to bear at from six to eight years (sometimes considerably earlier) and continues to a hundred years or more—many, indeed, pass their second century. Its straight, shaggy trunk reaches a height of a hundred feet. It is particularly valuable to humanity because it will flourish and bear generously in soil so alkaline as to make any other growth almost impossible, provided that it receive heat enough—a dry heat—to ripen its fruit and that its roots can find their way to soil moistened by sub-surface water or in some other manner. Among the finest of all dates are the Deglet Noor from the ''Sunken Gardens'' of the Algerian Sahara, the palms growing in dells of sand, their lower trunks buried in the sand and the strong rays of the desert sun reflected from the sandy slopes on each side—yet the palm will also, under otherwise favorable conditions, withstand a considerable degree of winter cold.

In addition to its own growth, it has converted many parts of the Sahara into richly productive zones, the shade it affords making it possible to raise figs, almonds, and other fruits in the oases.

The palms are divided into male and female trees. In a wild condition there are generally about equal numbers of each, but under cultivation one male serves for from 40 to 100 females, the fertilization of the blossoms of the latter being insured by tying to every flowering branch a sprig of the male flowers.

Under ordinary conditions a good tree will bear annually from 100 to 200 pounds of fruit, the amount being sometimes increased by careful cultivation to from 400 to 600 pounds. The fruit is borne in bunches weighing from ten to forty pounds, hanging directly beneath the feathery head of the palm, the individual dates adhering to numerous slender twigs attached to the central stems. As the dates do not all ripen at the same time, the branch, after cutting, is usually placed in a dry, shady location for the green fruit to mature, or is ripened by artificial heat, or by carbon dioxide. For specially early fruit, those first ripening may be picked from the bunch before the branch is cut.

There are hundreds of varieties of dates—many of them unknown outside their home districts—of all qualities and of divers shapes—generally oblong, but including a nearly perfect round, and from very small to such big styles as the Ibrahimi of Nubia, which attains a length of 3⅓ inches, and special varieties such as one common to South India and the East Indies, which is even higher in sugar content than the African, or Arabian, type and whose yield of date-sugar is a commercial product of considerable value.

These many varieties may be loosely grouped into three classes—the sweet, the only type known outside the home of the palm; the mild sweet, generally eaten as a fresh fruit; and the dry, or ''camel,'' date, preferred by the Arabs as a general food article, both pressed whole and ground into date flour, as under proper conditions it will keep for years. The flavor of the camel date is excellent, but it is too dry to correspond to the American idea of what the fruit should be.

Of the sweet dates, the choicest are generally those which are large, softish but not sticky, of a reddish or yellowish brown on the outside, with a whitish membrane between the flesh and the stone. The "stickiness" of the date is often the fault of the packer—the result of his lack of care or knowledge.

The Arabs make "date honey" from certain kinds especially full of sugary juice, by hanging the bunches up to drain. The fruit is afterwards packed for general consumption, sometimes pounded and pressed into cakes. A less choice, but still delicious "honey" is secured by expressing the juice after stewing the fruit.

For the best Oriental trade, rich selected fruits are packed in fresh "date honey" in large jars.

For popular consumption in the Persian Gulf region, great quantities of dates are gathered while still hard, boiled in salted water, and dried in the sun. The fruit thus treated is hard, but of sweet, nutty flavor and will keep a year or longer.

The most highly considered of dates imported into this country are those from Tunis, Algiers, and Morocco, all commercially classed as "Tunis dates," and generally packed in ten-ounce cartons. Among the best are the Deglet Noor of the Algerian Sahara—already referred to—medium-sized, maroon-colored, translucent, and of delicate and very mild flavor; the Majhul, or Tafilalet (Tafilat), from the Moroccan Sahara, averaging two inches long by 1¼ inches in breadth, bright bay to rich amber, much and deeply wrinkled, with thick, rich flesh; and the soft, sirupy Ghars (Rhars) of North Africa in general—1½ to two inches or more in length, bay-colored, frequently "blistered," and somewhat translucent. Only small quantities of these fruits come here because of the European competition for the limited supply.

The bulk of the dates imported are grown in Turkish Arabia and the Persian Gulf region. They are roughly divided commercially into "Persian dates," light of color in the best types and medium large; and "Fard dates," dark and small.

The principal varieties of Persian dates are the Hallowi (Sweet Halawi) of Mesopotamia and southward to the Busra region at the head of the gulf—medium large, sweet and mild, golden brown, and coarsely wrinkled lengthwise; the Khadrawi, also of Busra, medium large and rich flavored, light brown to deep orange brown, translucent, the skin seldom wrinkled but often "blistering" away from the flesh; and the Sair (Sayir)—medium to medium large, sweet and mild, dark orange-brown, sparsely

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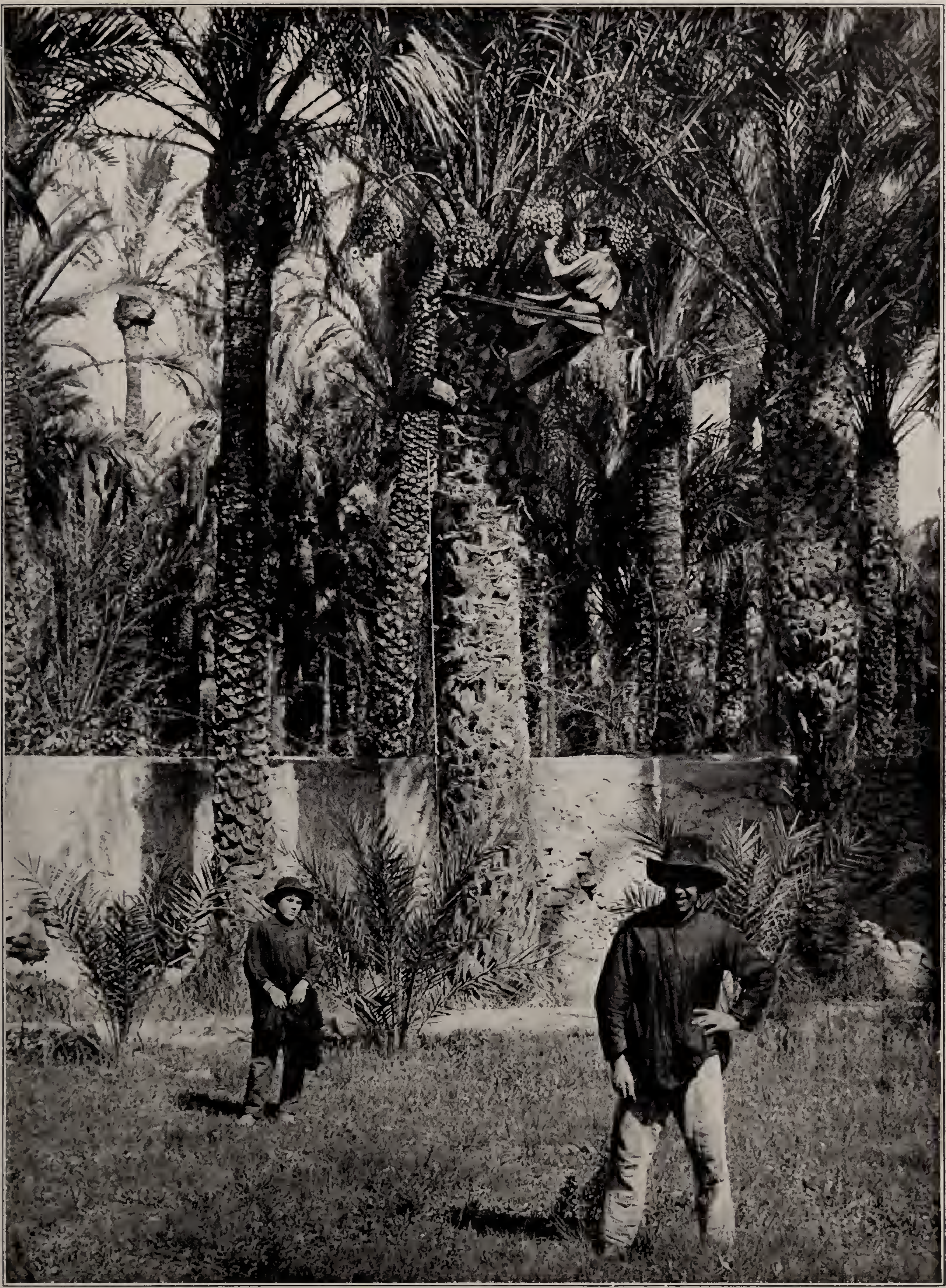
A new date garden set in a valley of sand, scooped out to permit the roots to reach water—the northern part of the Erg region of the Algerian Sahara



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Gathering dates, Elche, Spain

wrinkled or marked by longitudinal folds of the thick and rather tough skin. Hallowi and Khadrawi, carefully packed, are choice fruits, but jammed into large boxes they lose shape and attractiveness, presenting to the uninitiated no hint of their high merits. The Sair is (comparatively) of inferior quality.

A fourth—and at its best an exceedingly choice fruit—of the Persian Gulf region is the Khalaseh, medium-sized, light orange-brown or deep reddish-amber, translucent, only slightly and loosely wrinkled, of mild and deliciously delicate flavor. The Khalaseh seldom crosses the ocean, however, because of the Arabian demand for it.

Fard dates are second in importance in the quantity imported, but annual receipts run nevertheless into high figures. They are grown almost entirely in the Samail and Wadi Aman valleys of eastern Arabia. They are typically, as mentioned, dark and small—or, more particularly, dark brown, of small average size, sweet, and with a rather strong after-flavor. They are of only mediocre quality, but their firm flesh lends itself well to handling and transportation and, with only ordinary care,

Brown Bros.

A young Deglet Noor date-palm growing in California even when shipped in bulk in large boxes, they maintain a pleasing appearance right into the consumer's possession.

Importations are supplemented by an increasing total of domestic fruit grown in California and Arizona. Both of those states possess considerable stretches of territory which are admirably suited to the cultivation of the palms. The domestic crop includes some of the finest dates in the world, grown from offshoots of famous desert and Babylonian strains, their handsome appearance and high quality bringing good prices as fancy dessert fruits.

The preponderating food content of the date is sugar, the protein and fat percentages being small. The sugar is in most varieties of so wholesome a quality that it is very easily digested. A diet of dates and milk—fresh or curdled—has been found sufficient for human needs for months at a time.

A similar combination—dates and cottage cheese—will prove an agreeable surprise to those who have only eaten the fruit out of hand, especially to those who find the ordinary varieties somewhat too sweet for consumption in any considerable quantity.

Soft dates are also excellent fried in butter. Other uses—as in hot and frozen puddings—readily suggest themselves.

Confectioners prepare the fruit in many ways—stuffed with almond and other nut meats, separately or mixed with date, fig, or raisin meat, or the one or other of the two latter without the nuts; with ginger, or peanut or walnut butter; and with various forms of confectionery.

The fermented sap of the palm, and also the fermented juice or sirup of the crushed fruit, are in its native home consumed as palm wine or date wine; the young leaves may be cooked as ''palm cabbage''; and the stones are ground into ''date coffee,'' for human use or for cattle-food, or are pressed to obtain date oil.

DEHYDRATION. See Dried, Evaporated, and Dehydrated Foods.

DELICATESSEN, a German word signifying ''food delicacies.'' The delicatessen stores now so numerous in all our large cities started with one place in Grand Street, New York, opened about 1868. Their stocks embrace a wide variety of articles—ready-cooked meats, cheeses, canned goods, packet teas, olive oil, etc.

DEPPEI, or Deppe's Wood-sorrel *(Oxalis Deppei),* a Mexican plant under cultivation in Europe, and experimentally here. The young leaves—quickly grown and rapidly re-supplied after cutting—are tender and agreeably acidulous, making boiled greens of sorrel character. The roots also are eaten. They are good in size and pleasing in appearance and texture—about four inches long and tapering from a maximum diameter of three to four inches; fleshy, white, and semi-transparent, tender and juicy—but they are desirable only for stews or with other added flavors as they themselves are almost tasteless.

DEVONSHIRE CREAM, cooked cream shaped in molds, cheese-style. The cream is allowed to rise on the milk for several hours, then the milk and cream (still together) are scalded and set aside to permit the cream layer to harden. The latter is then put in small molds and set on straw mats to drain. It is ready for market without further preparation as soon as it is hard enough to retain its shape.

DEWBERRY, a fruit closely related to the blackberry, native to North America and only recently—and still imperfectly—domesticated. There are many confusing, and some very valuable, hybrids, but the true dewberry, in all its several distinct varieties, is distinguished from the true blackberry by its trailing habit, by its center flowers opening first, and by its fewer and scattered fruits. The true blackberry is erect-growing, opens its lower and outer flowers first, and flowers and fruits in comparatively dense clusters. Dewberries also ripen earlier as a rule, and good specimens are larger and more showy than blackberries, and have a characteristic flavor of their own.

DIASTASE, an enzyme, or ferment, developed in grains and other seeds during germination (see MALT). It is also present in plants and in human and animal saliva and pancreatic juice.

DIGBY CHICKENS, small smoked herrings from Digby, Nova Scotia.

DILL, a hardy, easily grown herb, resembling Common Fennel, cultivated chiefly for its aromatic, pungent seeds, which are employed in the manufacture of sauces and pickles, and in the East as a general condiment. The leaves—their flavor suggesting a combination of fennel and mint—are similarly employed, and are preferred by some people.

DILL PICKLES, Dill Spice. Dill pickles are made from either fresh or salted cucumbers—the former being considered the choicer, but the latter having better keeping qualities. The dill-pickling process employs pickled dill seed, or herb, and "dill spice"—composed of allspice, black pepper, coriander-seed, and bay-leaves—in addition to the brine.

DISTILLATION, in the fundamental features of its most common applications, is the vaporizing of a liquid by heat, and then conducting the vapor, or steam, into a cool vessel, where it condenses into a liquid. The value of the process is found in the fact that very few liquids become vapor at the same temperature. Ethyl alcohol vaporizes at 173° Fahr., and water at 212°—so each can thus be separated from the other—and also from other components, because of *their* different boiling points.

The alcoholic uses of distillation are of wider popular knowledge, but the non-alcoholic are of much the greater importance. They include the purification of water, the separation of light and heavy oils, and the divorcing of volatile from non-volatile substances.

DISTILLED WATER. See reference in the general article on WATER.

DOCK. See "spinage dock" in the article on SORRELS AND DOCKS.

DOGFISH. See GRAYFISH and BOWFIN.

DOUGHNUTS, CRULLERS, FRIED-CAKES, variously shaped cakes of leavened, sweetened (and, commonly, spiced) dough, deep-fried in a pot or deep pan of lard or other fat or oil. By the most widely accepted usage, doughnuts are ring-shaped and crullers are not, being instead twisted or curled. Fried-cakes may be of either or any other shape. There are, though, many to dispute these dicta. The three titles so frequently overlap in different parts of the country and by different formulas that it is impossible to lay down an exact division that would be universally acceptable.

The doughnut was originally a small cake, or lump, or ''nut'' of dough thus cooked. Later, it was fashioned into a great variety of shapes—plain round (the present hole-less doughnut, or fried-cake), diamond-shaped, in rings, etc.—and of these the ring style in time gained predominance and is to-day the type most strongly fixed in popular favor, the association of shape and title having been further advanced by the fame that followed the distribution of ''doughnuts'' by the Salvation Army lassies during the World War.

The cruller (from the Dutch *Krullen,* ''curled'') was a similar piece of dough twisted or curled, or gashed crosswise, before cooking, and that still holds as the best description, though there are many thousands who know the cruller as a ring-shaped cake—the ''doughnut'' of their compatriots!

''Fried-cake,'' being a term which originated in the cooking of all styles of doughnut-cruller cakes, has been and is applied to all of them—to the ring, the solid round, and the twisted. A good specific definition would confine it to the solid round—i.e., the doughnut without the hole. An objection to the title for either the solid round or any other shape is that to the uninitiated the term ''fried-cake'' generally suggests a sweet pancake, or similar product, fried in the common way—with a small quantity of fat in an ordinary frying-pan.

DRIED BEEF, or Smoked Beef; Chipped Beef. The thick flank—the ''round'' (see Beef)—is the part generally used for dried beef. It is divided into ''inside'' (the part next the main carcass), ''knuckles'' (the meat surrounding the bone), and ''outside''—the first two being the choicest—then set for about ten to fourteen days in a pickle of salt, sugar (or molasses), and a little saltpeter, and finally hung up and smoked like ham. Large quantities are sold in thin slices, put up in tins, glasses, and wooden boxes. It should show a fine, even texture and a rich red color, and possess an agreeable nutty flavor. A popular method of service is to parboil, drain and serve with cream sauce. ''Chipped beef'' is thin-sliced dried beef.

See also Pemmican.

DRYING, EVAPORATION, AND DEHYDRATION. This brief general article refers particularly to the drying of fruits and vegetables. Other dried foods are treated elsewhere under their own and divers special titles.

In their application to fruits and vegetables, the uses of the words ''dried,'' ''evaporated,'' and ''dehydrated'' are various and fluctuating. ''Dried'' is commonly employed for those dried in the open air; ''evaporated'' for those dried indoors; and ''dehydrated'' for those evaporated by the use of special ''dehydrating'' machinery of modern device. The purpose of all methods is the same—a sufficient reduction of the water content to guard against molding or fermentation. An additional advantage is the great reduction of bulk.

Open-air, or sun, drying produces satisfactory results in the case of sugary fruits such as dates, figs, prunes, and sweet grapes (raisins), and a few others (as apricots), but not in the preservation of a majority of the milder, more delicate fruits; nor of most vegetables. It is a long, slow process which breaks the tissue cells, with a consequent hardening of the flesh and a considerable, often total, loss of the distinctive natural flavor and color. Much the same objections apply to "ordinary" indoor drying, or "evaporation."

"Dehydration" accomplishes the same reduction of water—extracting it until the moisture content is so small that micro-organisms cannot grow—yet (comparatively) so quickly and at so moderate a temperature that the cell walls are not ruptured—color and flavor consequently remaining to a large degree undisturbed. If properly performed, the dehydrated fruit or vegetable can be almost completely restored to its original color and flavor by soaking in water—that is to say, by simply permitting it to re-absorb the water that has been taken from it.

The preparation for drying varies—as would be expected. Vegetables are sliced or shredded, or otherwise treated, according to their characters. Berries are dried whole (pierced lengthwise if very big). Large fruits are halved or sliced or otherwise divided.

For most vegetables, a short blanching precedes dehydration, and a few—as sweet corn, beets, and potatoes—require a little cooking. Only a minimum of cooking is done, in order to avoid as far as possible any change of natural color or flavor. Preliminary brine baths are employed in some cases.

Only clean, sound fruits or vegetables of the most desirable degree of maturity should be dehydrated—*young* string-beans, for example, and *ripe* fruits. There is no magic in the process which will make an old, tough, string-bean palatable when it is restored. Its dehydration is merely a waste of time and opportunity—and if marketed as an article of good quality it becomes a fraud upon the purchaser.

The reduction in bulk ranges from three to one (as sweet-potatoes) up to as high as fourteen or fifteen to one (as tomatoes and pumpkins).

All dried foods should be kept in a cool, dry place.

It is ordinarily most convenient to prepare those desired for use by setting to soak over night. In summer, the bowl or other receptacle should be placed in the refrigerator. Some vegetables, as spinach and beet-tops, do not require any preliminary soaking.

See also articles on dried fruits such as DATES, FIGS, PRUNES, and RAISINS, and vegetables such as BEANS, LENTILS, and PEAS, and references in FOOD VALUES to the effect of drying and dehydration on vitamin properties.

DRUMFISH, or Common Drum, or Black Drum, a sea-fish, popular in southern markets, which ranges from New England to the Rio Grande. It takes its name from the drumming sound made by adults, especially during breeding time. Big specimens occasionally reach a weight of more than 100 pounds, the average market size being however from one to ten. The flesh, though coarse in grain, is tender and delicately flavored, and the roe is highly valued. The Drum is an attractive looking fish—of silvery color, marked (except when old) with broad, dark, vertical bands.

DUCKS. There are twelve "standard" varieties of domestic ducks raised in this country. The most popular and abundant is the *White Pekin,* first imported from China about 1872. It is a large bird, a pair often reaching a total weight of twenty pounds, of delicate flesh, and an excellent layer. It may be recognized by the peculiar

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White Pekin ducks

turned-up effect of its tail and its erect carriage—its legs are set so far back that it walks in an upright position. In a good specimen, the back is long and broad, and the breast round, full, and very prominent. The plumage is downy and creamy or snow-white throughout, and the bill yellow. The "standard" weight of the adult drake is eight pounds and of the adult duck seven pounds; that of the young drake and duck, each one pound lighter. The average market weight is about five pounds each.

Next to the Pekin in popularity is the *White Aylesbury,* a famous English variety, similar in general appearance, excepting the special Pekin effects of carriage and tail, and averaging a little heavier in weight.

Other well-known types are the *Colored Rouen*—the name probably from Rouen, a city of Normandy, which is famous for its poultry—with the heavy domestic duck shape but with plumage closely resembling that of a wild Mallard duck; the *Black Cayuga,* a purely American variety; the very ill-tempered, combative Colored and White *Muscovies;* and the *Indian Runners*—so named because they came from India and because they run instead of waddling—small birds but prolific layers.

Ducks are sent to market both dry-picked and scalded, opinions being divided as to the better method. Ducklings are generally in the market from May to November. The older birds then take their place from December to April.

The general tests for age and condition given under the head of POULTRY apply in buying ducks. An additional test for age is found in the windpipe, which can be easily squeezed and moved in a young duck, but is fixed and stiff in old birds.

Wild Ducks. The best known varieties of wild ducks are the Canvasback, Mallard, Redhead, Ruddy, Green-winged Teal, Blue-winged Teal, Pintail, Black, Grey, Widgeon, Black-head, and Wood. (See the color-page of Canvasback and Mallard, opposite 180.)

The high esteem in which these birds are held by epicures is due to the character of the food upon which they subsist—chiefly grain and aquatic plants. They avoid the fish diet which develops the rank flavor of the Merganser (also known as the Sheldrake and Saw Bill—or, when young, as the Dun Diver)—a bird which may be known by its hooked and saw-toothed bill and should always be avoided.

Most important in their dietary are WILD RICE (the ripe and germinating seeds, and young shoots), wild celery (all parts but especially the submerged rootstocks and winter buds), many kinds of pondweeds (the tubers, winter buds, etc.), wild millet seeds, wild potatoes (the "delta potato," or wild onion), wapato tubers, and waterlily seeds.

The paragraphs following give briefly some characteristic markings of the eleven wild ducks that are listed above. It will be understood that the descriptions are not intended to be complete—full details of their elaborate costumes would cover a great many pages, for the plumage of some varieties changes considerably with the season.

The *Canvasback* takes its name from its back plumage—of ashy white, marked with zigzag black lines. It is further distinguished by a very short bill, and a rather long, narrow head sloping back from the bill. The crown of the head is a rich chestnut color, with parts nearly black. The average market size is from five to six pounds a pair, sometimes going as high as eight pounds. The female is somewhat smaller than the male.

The *Mallard* is the ancestor of a majority of our domestic ducks of colored plumage. The head and neck of the male are a glossy green and the back brown and grey, shading to black, with blue and white markings on the wings. The female is principally dark brown and buff. The average market weight is five pounds a pair, though it often goes higher.

The *Red-head* resembles the Canvasback in general appearance, but it averages a little smaller and it also differs from it in several details—the black and white lines on the back are nearly equal in width, giving a silvery appearance; the head is well rounded instead of sloping back from the bill, and there is no black in its coppery chestnut crown. The upper part of the female is a greyish, mottled-looking brown.

The *Ruddy* is again smaller than the Red-head. The crown of the head and the neck are glossy black and the sides of the head are dull white. The upper part of the body is encircled by a band of red brown and the lower part of the back is white with brown bars. It is also distinguished by the stiffness of its tail quills. The upper part of the female is a grey-brown.

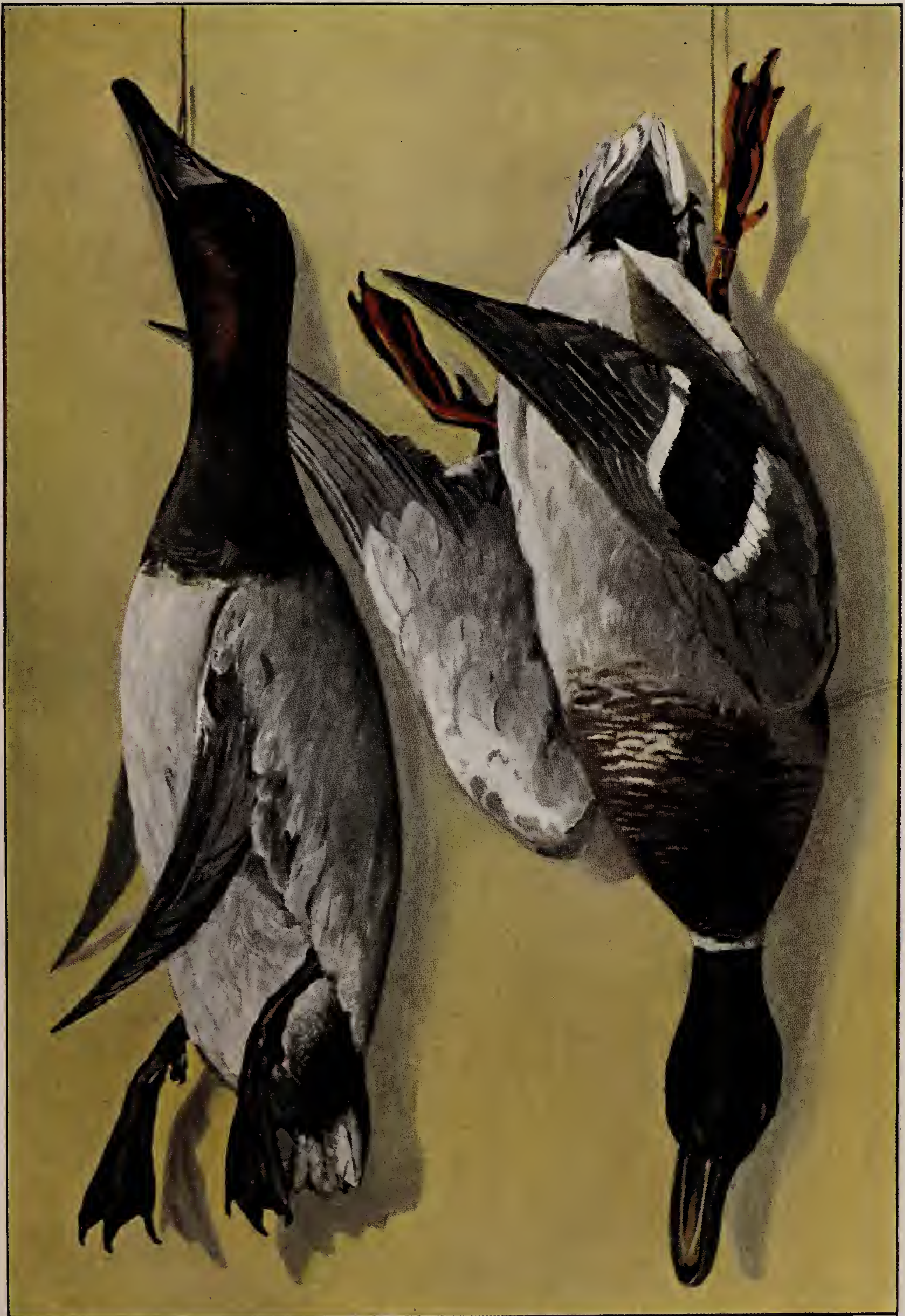
The *Green-winged Teal* is one of the smallest of the wild ducks. The head and neck are chestnut with green on the sides of the head; the upper back and sides are marked with waving black and white lines, and the lower parts are dark grey-brown. The wings are distinguished by the green patches which give the bird its name. The upper part of the female is mottled brown, with head and neck streaked with light reddish-brown.

The *Blue-winged Teal* is a little larger than the Green-winged. The head and neck are dark grey with a white crescent between the eyes, and the back and wings reddish-brown with purple tints. The female is brown and buff.

The *Pintail* is so named because of its long greenish-black tail feathers. The head and throat are also of greenish-brown, the neck is especially long and slender, the back is marked with waving black lines, and the breast and under-parts are white. The upper part of the female is mottled grey, yellow, and brown. Its tail is shorter than that of the male.

The *Black Duck* is about the same size as the female Mallard. The head is a rich brown and the upper part of the body dark, rather dull brown.

The *Grey Duck* has a head streaked with black or brown, the upper part of the back a brownish-grey and the lower part changing to black. The female is smaller and darker.



Canvasback

Mallard

WILD DUCKS

The illustrations are a little more than one-half the linear measurements of fair specimens

The *Widgeon* has a back of grey-brown mixed with black and a head white or buff on top and green on the sides. The female is smaller and darker.

The *Black-head,* or Scaup—also known as Blue-bill and Blue-billed Widgeon—has head, neck, and upper back and breast black; the remainder of the back being black with white markings, and the belly white. The two varieties, the "Great" and "Lesser", differ little except in size. The average market weight is four pounds a pair.

The *Wood-duck* is a bird of such elaborate plumage that it would be difficult to name any one or two points as particularly distinguishing it. It is so beautiful that it has won complete and entire protection as a bird of plumage.

A new industry, capable of considerable development, is the raising of wild ducks—chiefly mallards—in large preserves, with lakes and marsh and other conditions provided for the satisfaction of their tastes and inclinations. The natural food supply is supplemented with rations of cracked corn, etc., and incubators attend to the hatching in order to insure the maximum increase of duck population.

DULSE, an edible, purplish-red seaweed, especially abundant along the New England coast, growing on rocks and larger seaweeds. It consists of flat fronds, solitary or tufted, fan-shaped in style, a good deal divided and sometimes sub-divided. It is eaten raw as a relish, either fresh or dried; plain boiled in water or cooked in butter or milk to be served as a vegetable with fish or other meat; and added to stews and similar dishes. It should be washed in several waters before cooking. In Scotland it is roasted by twisting it around red-hot tongs. For its dietetic value see the article on Seaweed.

DURIAN, one of the most important of Malaysian fruits, borne by a tall and stately tree. It is greenish, inclined to oval, about the size of a large coconut, and

International

A duck farm on Long Island, N. Y.

with a thick husk armed with strong, sharp spicules. Its cream-colored, highly flavored, pulpy flesh is much esteemed despite its odor—which is exceedingly unpleasant to a novitiate. The seeds (about as large as medium-sized chestnuts) also make good eating when roasted, and the unripe fruit is cooked as a vegetable.

DURRA, one of the several cultivated grain-sorghums (see Sorghum).

EDDO, a title colloquially applied to the Taro (which see).

Common eel

EEL, a fish of strong individuality of appearance, found in several varieties in all countries and climates, in both fresh and salt water.

There are in United States waters three main types representing three distinct families. First is the Common, or "True," eel, a fresh-water fish which goes to salt water to spawn, two feet and more in length, marked by inconspicuous embedded scales, and brown or yellowish-olive in upper coloring. Next is the Conger eel, a sea-fish, reaching a length of seven to eight feet. scaleless, greyish or dusky brown in upper coloring, and silvery below. Third are the pugnacious, leathery-skinned, sub-tropical and tropical salt-water Morays, distinguished by the absence of pectoral fins—the most important being the spotted moray of the South and the so-called "conger eel" of California.

The flesh of the eel is tender and nutritious, but some people find its oil content indigestible. This defect may be overcome by immersing it for a day or two in a bath of vinegar and water—or better still, by removing some of its oil by careful broiling until the skin shrivels—which will also make it easier to strip the skin off.

Young eels are known as "elvers."

EGGS. In ordinary parlance, hen's eggs are always understood when "eggs" are mentioned, but the omnivorous human diet includes also those of various other creatures. There is, for example, a considerable consumption of the eggs of ducks, geese, and guinea-fowls, and in some sections of gulls and other wild birds, those of the lapwing, or "plover," being considered a great delicacy. The eggs of turkeys and, in California, of ostriches are also occasionally eaten, but they are ordinarily too valuable for hatching to use them for the table. Again, terrapin eggs are served with the meat, the eggs of the sturgeon as caviar, those of the shad as "shad roe," etc. These, however, are topics foreign to the article following, which refers to the eggs of domestic hens.

Eggs constitute one of the most valuable of food products, both because of their nutritive value and because of the many ways in which they may be utilized. They are suited alike to the hale and the delicate, to both adults and children. They are, as a rule, easily digested if lightly boiled, poached, shirred, or fried (with only a moderate amount of fat), and particularly so if cooked in the shells to the "coddling" point in water held at about 160° Fahr.—i.e., for five to ten minutes in very hot but not boiling water—or if made into lightly baked custard. Scrambled eggs and omelettes, even when properly soft and tender, require a little more time to pass through the stomach, and hard-boiled eggs still longer unless mastication of the white is exceptionally thorough. Over-fried eggs, and those scrambled to the leathery point, and those either scrambled or fried in a considerable excess of fat, should be avoided by people with sensitive stomachs. Raw eggs are sometimes prescribed for specific reasons, but their assimilation is not as complete as when properly cooked.

Eggs should always be kept in a refrigerator or other dry, cool place free from any strong or objectionable odor. If packed in salt or sawdust they will remain fresh longer than if exposed to the air.

There is a great similarity in the product of nearly all breeds in the proportion of shell, white, and yolk. Roughly speaking, the shell makes up one-tenth, the yolk three-tenths, and the white six-tenths. The white is nearly seven-eighths water. The solids of the white are practically all nitrogenous matters, principally albumin. The yolk is about one-half water, one-third fat, and the remainder principally nitrogenous matter. The mineral content includes especially calcium, iron, and phosphorus. The yolk is of all common foods the richest in iron.

The color of the shells varies with the breed and is of no consequence except as a matter of local preference. Some localities consider white eggs the choicer, others think the brown are superior.

Variations in the meats are attributable to both seasons and other conditions. Eggs obtained in the spring are generally firmer and fuller than those gathered in the summer. Flavor and color are further affected by the food of the hens. Excessive consumption of onion bulbs or tops, for example, will spoil the flavor, and lack of green food will result in pale yolks. The thickness of the shell also may vary with breed and diet and in different sections. Deficiency of lime will result in soft or thin shells—a serious defect, as in commercial handling it increases the percentage of cracked eggs.

The most important difference is in weight—in fresh eggs chiefly attributable to difference in size. The range is from seven to ten to a pound, yet all cooking receipts say, "take two eggs," or whatever number is considered necessary, without any allowance for variation in size! If equal in other respects—in freshness, appearance, etc.—"seven to a pound" eggs are (if judged for their food value) worth half as much again per dozen as "ten to a pound."

"Fertile" eggs are those from flocks with which the rooster has been permitted to run. "Infertile," or "sterile," are those of flocks from which the roosters have been barred. In eggs gathered promptly, and thereafter held at a temperature below that necessary for the incubation of the embryo, there is no difference either in flavor or food value. Under other conditions, the fertile will spoil much more quickly than the sterile. It is of course understood that though mating is necessary to the production of a chick-embryo, it has no bearing on, or effect on, the formation of the egg itself. The roosters permitted to survive may be segregated after the breeding season—this being followed by segregating the cockerels of the new hatchings—or all hens except those selected for breeding purposes may be entirely and at all times segregated.

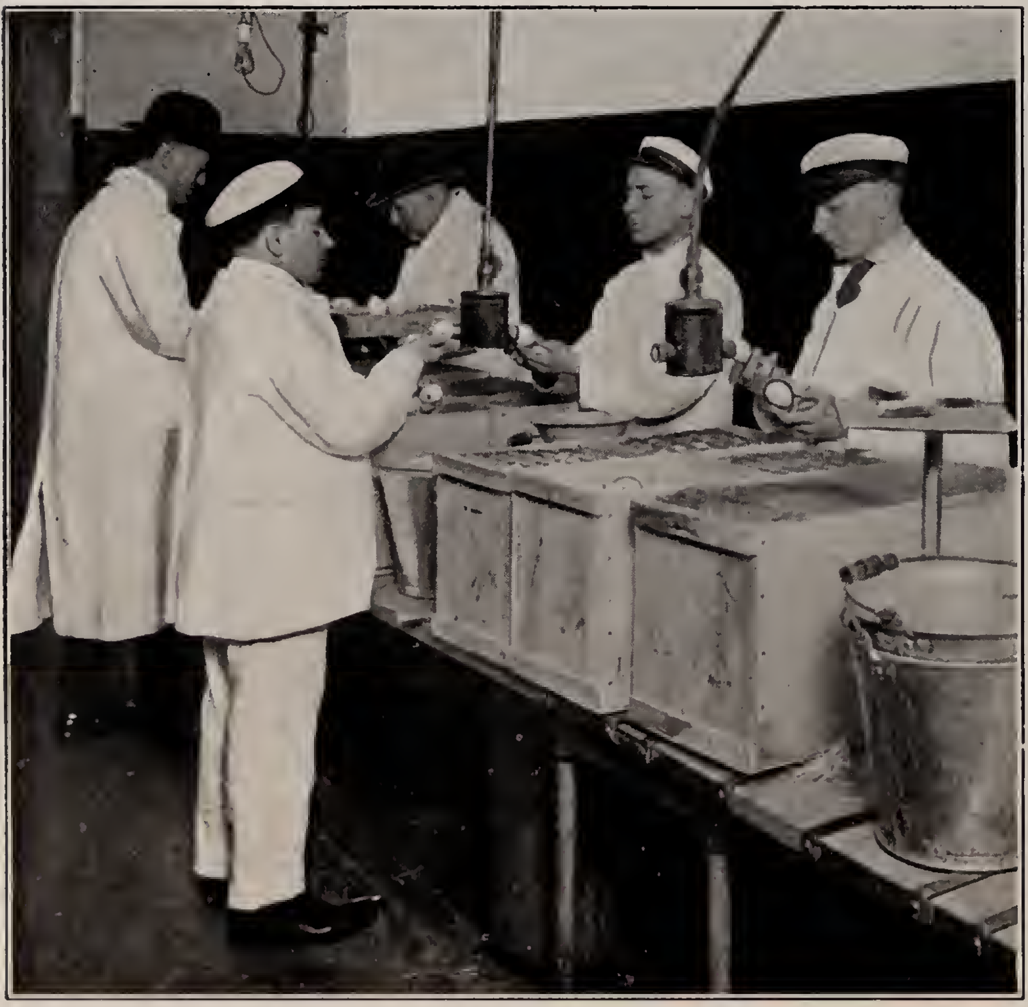
To enjoy the full delicacy of a fresh-laid egg—whether fertile or sterile—it must travel to the table as speedily as possible and must be most carefully protected in transit from heat, moisture, and strong odors. Heat will not so quickly affect the sterile as the fertile egg because it contains no embryo to be incubated, but its freshness will nevertheless be impaired by the stimulated development of any contained bacteria. Moisture and strong odors are prejudicial to sterile and fertile alike—moisture opens the pores of the shell, admitting bacteria and molds and greatly facilitating the absorption of foreign odors; and foreign odors will find their way through the pores (though less rapidly) even if there is no moisture to affect the shell. A two-months-old cold-storage egg—if it be a fortunate specimen laid in a cool month and speedily placed in a well equipped, well managed storage house—may be fresher than a fertile egg only a few hours old that has deteriorated in a damp, warm nest, or in the midsummer sun's rays on a hot freight platform, or in a warm, ill-ventilated retail store odorous with cheese, onions, and other commodities.

There are many grades of eggs to the men who handle them between the farm and the breakfast table—fancy fresh, fresh gathered, checks, storage packed, storage, limed, known marks, extras, firsts, seconds, dirties, etc. They are assorted both by their exterior appearance—size, cleanliness or the opposite—and by "candling."

Candling, in a cold storage house, is performed in a dark room where electric lights glow inside dark-green metal shades, with open spaces or holes of the diameter of an average egg. Every egg is twisted and turned in front of one of these holes, and the electric ray forces its disclosure of nearly every guilty secret.

For months during the gathering season, a force of men stand at their light holes, examining eggs with marvelous rapidity and grading them in boxes which an elevator is carrying ceaselessly to cold storage rooms.

A new-laid egg appears semi-transparent, ranging in tint (if its yolk be of a moderately light yellow)



Capitol Photo Service

Candling eggs—the room was flashlighted for the photograph but is otherwise dark except for the lights in the candling-lamps from pinkish-yellow, if a white egg, to pink if a light brown egg, and to deep pink if a very brown egg—the color lighter on the edge than at and around the yolk, with the yolk itself shadowily indistinct; and with only a very small air-chamber—a separation of skin from the shell, filled with air. (There is no air-chamber at all in a full egg literally just laid.) Orange-colored yolks reflect a red light (varied in depth by the color of the shells).

As the egg ages, the yolk becomes more opaque and shows a definite outline; the air-chamber becomes larger; and the white weakens and permits the yolk to sink toward the shell, presently to rest on it, and at last to adhere to it. The yolk sack weakens also, and is likely to break when the egg is opened, or it may break within the shell, resulting in an "addled" egg (known as a "mixed rot" in the first stage, and a "white rot" if well advanced).

Eggs with adhering yolks, or in which the yolks have discolored the whites while in the shell, are not fit for consumption.

A fresh "weak" egg presents much the same appearance as a moderately stale egg. There are also fresh eggs which are not "full" — which are abnormally shrunken and therefore show a large air-chamber. These may be perfectly wholesome, but they are given a lower rating for the defect.

The foregoing remarks apply equally to sterile and fertile eggs. In addition, fertile eggs are subject to changes brought about by incubation. If incubation has not been checked by sufficiently low temperature, a dark reddish spot—the "hatch spot"—soon becomes visible. The egg is still edible, but has become a "second." The next phase, if incubation continues unchecked, is the appearance of blood veins, or the "blood ring"—the appearance of blood around, or partly around, the hatch spot. The egg should then be classed as inedible. After this, deterioration is rapid—the entire contents soon become cloudy, and finally almost black.

Among other defects noted by candling (in both sterile eggs and those originally fertile) are mold spots—showing grey or black, and in time making the entire meat appear black—and dark mottled areas coating the yolk caused by bacterial deterioration. These also are inedible.

Candling is, however, not infallible. It will not disclose a musty-odor egg, or a sour-odor egg, or an egg with a green white (the result of bacterial growth)—yet none of these should be eaten.

The bacterial egg with the green white must not be confused with the "grass egg," the perfectly wholesome egg distinguished by an olive-green yolk. "Grass eggs" are rated as "seconds," but this is due to their abnormality of color, not to any defect in their food quality.

A "check" is an egg which has met with an accident that has cracked the shell—but has not damaged it sufficiently to cause it to lose any of its contents. The crack may be so slight as to be ordinarily invisible, but the egg must not be sold at the same price as a perfect one, for its potential life has been greatly shortened by the ready access thus accorded to bacteria and molds.

Eggs with edible meats, but cracked or with dirty shells—as also those greatly undersized or shrunken, and those not fully fresh but still edible—are best shelled and frozen, or dried and marketed in (generally) powdered form, as (excepting of course the undersized) they are liable to deteriorate in storage.

Frozen eggs held at a temperature of about 10° Fahr. will retain their initial condition for a year or longer. They are placed on the market as whites, yolks, and wholes, or whites and yolks mixed, and are largely sold to bakers, noodle manufacturers, and makers of salad dressings and other food articles.

The dried yolks and whites, separately or together, are employed in baking, etc., both in private households and commercially. The domestic product is supplemented by large imports from China—ducks' eggs forming a large proportion of Chinese offerings. The increase in this industry should eliminate any temptation to the household use of "egg substitutes," a majority of which consist largely of cornstarch and none of which justify such a title.

Eggs that are unfit for eating in the shell should never be offered or used for human consumption either frozen or dried—as neither process—though it may give opportunity to eliminate telltale signs and odors—can set the clock back and convert a bad egg into a wholesome food product.

Inedible eggs are used chiefly for tanning leather.

Eggs that have passed the candling test—that have proved fresh laid, whole in shell, clean, full, and sterile (or, if fertile, if incubation has been checked by a low temperature)—may be held for a number of months in cold storage at a temperature ranging between a little above and a little below the freezing point without seriously impairing their food value for ordinary purposes. Under good conditions they will retain a fairly fresh flavor for nine months to a year, losing however in weight from the steady evaporation of the whites. The "storage" taint sometimes noticeable (chiefly in the yolks) is mainly attributable to absorption from their surroundings, especially from the cases and straw-board fillers, moistened by this evaporation.

A home candling device may be fashioned from a section of stovepipe or by shaping any piece of metal into a shield to go around an electric bulb or an oil lamp (in the latter case, making small base perforations to avoid over-heating) and cutting a hole about 1¼ inches in diameter. It must, of course, be operated in a dark room. Both experience and judgment are essential to uniformly accurate grading, but a little practice will render any intelligent person capable of generally distinguishing a high grade, fresh egg from one of doubtful or undesirable characteristics. For beginners, white eggs are the easiest to read because of the greater transparency of their shells—especially those with moderately light yellow yolks because their first red incubation signals are seen in greater contrast than in an orange-colored yolk.

Another simple test which applies chiefly to the age of an egg is to place it in salt water—one-tenth salt and nine-tenths water. A full, new laid egg will sink in the solution; an old one will float because of its larger air-chamber. A floating egg may not have reached the unwholesome stage—and it may perchance be a perfectly fresh "light" specimen—but it is to a certainty not of the first quality, for it is either not full or not fresh laid!

For home use, eggs may be preserved by immersing in a 10% solution of water-glass (*sodium* and *potassium silicate*). If all precautions are observed they should appear comparatively fresh even after the expiration of three or four months. One gallon of the solution is sufficient for five dozen if they are properly packed. Only those tested, clean, whole (not cracked), and unwashed should be used. Sterile are better than fertile. Stone jars are the best receptacles and it is important that the solution be kept a full two inches higher than the top of the eggs. When taken out of the solution for use, the shells should be pricked through at the large end before being placed in water, in order to avoid bursting by the expansion of the enclosed air (as the solution seals the shell pores).

Another method is by immersion in lime-water. Occasionally the result is a slightly limy flavor, but as a rule it is just about as satisfactory as by the water-glass formula. The lime proportion is from two to three pounds of unslaked lime thoroughly dissolved in five gallons of cold (but previously boiled) water. The eggs should be covered to the depth of at least two inches.

The number of eggs that a hen will lay in the course of a year depends upon both breeding and feeding. The total has been greatly increased within the last few years, and is capable of further improvement, for even the maximum now obtained is considerably less than the number of oöcytes, the initial undeveloped eggs, which form—in cluster style—in the ovary of the hen at the breeding season. It seems probable that many of the unutilized oöcytes re-absorbed into the system of the fowl could be developed into eggs.

The breeds that lay the largest eggs, averaging seven to a pound, are the Black Spanish, Light Brahma, Houdan, La Flèche, and Crève Coeur. Eggs of medium size and weight, averaging eight or nine to a pound, are laid by the Leghorn, Cochin, Minorca, Red Cap, Poland, Dorking, and Games. Hamburgs average about ten to the pound. The average weight of twelve laid by different breeds is a little more than 1¼ pounds.

The most popular types of fowls for specialized egg-producing are the Leghorn, Minorca, Black Spanish, Hamburg, Campine, Ancona, Blue Andalusian, and Red Cap, their average total output being larger than that of other varieties.

The size of the egg is affected also by the care accorded the fowls. Those from the South formerly averaged small for all breeds, but a marked improvement has been noticeable during recent years.

With the exception of those which, because of their proximity to a large city, can profitably be shipped by express, eggs always travel in refrigerator cars—winter as well as summer, for the heavy construction of the perambulating ice-chests is equally serviceable for protection against cold and heat. One carload contains four hundred cases, or one hundred and forty-four thousand eggs.

On large poultry farms, eggs are produced and handled very much as the product of any other factory—the poultry man knows his cost of production by dozen or case, just as does his contemporary in any other line of business—but the greater part of the supply is still represented by accumulations from thousands of general farmers scattered all over the country.

The history of one of these farm eggs reads like "a gathering of the clans." The hen that laid it may be the property of a small farmer in a western state, located fifty or a hundred miles from the nearest good-sized town. The egg is one of a dozen that the farmer takes to the nearest village store and either sells for a small sum of money or barters for sugar, calico, tobacco, or some other commodity that he needs more than he needs eggs.

Other farmers in the neighborhood are doing the same and the store is thus the recruiting station for a goodly company of eggs that must necessarily find a market somewhere else. These eggs are sent to a larger center, where they pass into the control of a large, or small, shipper who mobilizes them, to continue the figure, no longer by companies but by battalions, regiments, and armies—i.e., carloads.

When the shipper has a carload of eggs ready for the eastern market, he telegraphs the fact to an eastern dealer. A certain amount of dickering goes on over the wire, and the eggs are finally sent East. They are not though, as a rule, for immediate consumption, hence the necessity for the refrigerator car and the storage warehouse to retain the condition in which they were purchased.

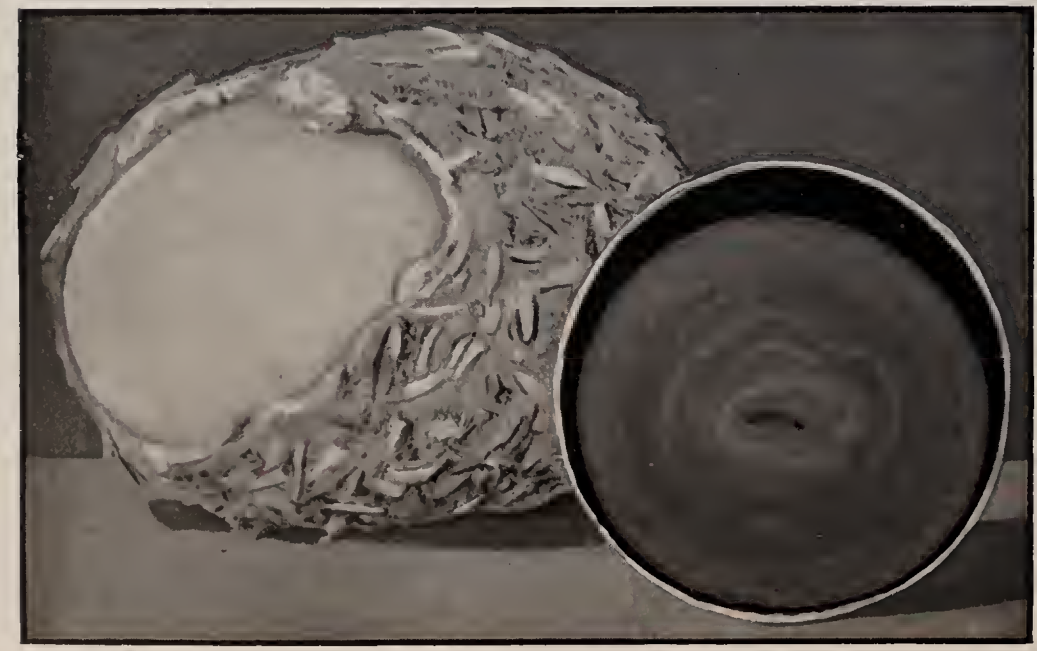
Boiling Eggs. There are other ways of boiling eggs than by their immersion for a certain number of minutes in boiling water. A more pleasing result can be obtained (1) by placing them in cold water and gradually bringing it to a boil, removing them when the boiling point has been reached, or (2) by a form of coddling—placing them in boiling water and then turning the gas flame out, or setting the pot well back on the range, removing the eggs in from seven to ten minutes. By either procedure, the white will be tender and jelly-like instead of the somewhat tough and leathery consistence it has in the ordinary boiled egg.

The exact time required for either boiling or coddling depends upon several circumstances—the number of eggs placed in the saucepan, the size of the saucepan and the quantity of water in it, the size of the eggs, and their temperature when placed in the water.

Chinese Preserved Eggs. In China, enormous quantities of eggs—both ducks' and chickens'—are preserved in their shells by pickling. There are two chief styles—one which keeps them edible without cold storage for two or three months; the other by which they will keep indefinitely, improving (according to Chinese ideas) with the passage of years.

In the first form (that for temporary preservation) the fresh eggs are placed in strong brine for several days and then coated with a mixture of earth, salt, and chaff. On opening, the yolk and white have the general appearance of fresh eggs, but the yolks are almost solid and have a "stale" odor. They are used either raw or for cooking in the same ways as fresh eggs.

In the second, and more important, method of permanent preservation, the fresh eggs are pickled by immersion for three months or longer in a thick infusion of lime, salt, lye, and tea-leaves (or the first three ingredients added dry to a strong infusion of tea-leaves), then drained and coated with a mixture of clay and rice husks, etc. The color and general condition of the meat of these pickled eggs vary with their age. When moderately old — say a year or so — the yolk is brownish-green and of a soft, almost pasty, consistence; the white is a stiff jelly of very deep, translucent amber; and both have a fishy, ammoniacal odor. The yolk has enlarged itself by absorption of water from the white and tastes somewhat like beef extract with a suspicion of fish-paste



Chinese preserved eggs, two years old—part of the clay coat removed from the whole egg

EGGPLANT (reduced)

addition. The white is almost neutral in flavor. The odor decreases with exposure to the air.

The eggs are eaten raw—each mouthful accompanied, perhaps, by a piece of vinegar-cured ginger—and also variously cooked.

In general commerce the life of these eggs is from one to two years, but Chinese merchants enjoy a "luxury" trade in those of greater age, the price ascending with the lapse of time. At ten years or more—the entire shell content then a deep brown—they are a famous delicacy, reserved for ceremonial occasions.

The idea of these eggs—and probably also the above description of them—is offensive to American tastes, yet (except for the psychology of tradition) there is really no more reason why objections should be raised to the bacterial-enzymic-alkaline change of the egg meat than to the transformation of milk into cheese. In truth, the Chinese preserved egg is a very mild, delicate product compared with many cheeses popular among us.

The advantages of this method of preservation are the elimination of much food waste and a great reduction in handling-costs. If generally adopted it would save millions of eggs which now become inedible because they do not reach cold storage with sufficient promptness—and one can readily picture the great economy both in transportation and in storage, when—instead of careful guarding of the eggs in specially equipped cars and warehouses—they could be shipped all around the world with no other protection than a filling of sawdust in the barrels containing them.

EGGPLANT (see color-page opposite), a fruit-vegetable which is steadily gaining popularity in this country. In many parts of the tropics it is a staple and important article of diet. It is cultivated as far north as New York, but the choicest types are, as a rule, those grown in the southern states. There are several varieties, yielding fruits of differing qualities, colors, shapes, and sizes. The best known and most popular variety is somewhat egg-shaped, three to five inches in diameter, and from light purple to almost black. The "white" styles are preferred in Europe. The fruit is generally fried in slices, but is even more palatable when cut in one-inch cubes. It is also excellent baked (plain or stuffed), boiled, or stewed.

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Gathering eggplants

ELDERBERRIES, the fruits of several species of the elder, especially the deep purple berries of the American, or sweet, elder, a shrub widely distributed throughout central and eastern North America, and the blue-black or bluish-white fruits of similar, but frequently larger, shrubs or small trees native to the West. They are generally cooked or made into elderberry wine. Many superstitions attach to the tree—one of medieval England that it was upon an elder that Judas Iscariot hanged himself, and a crown of elder thus became a token of shame and disgrace.

EMMER, a very hardy species of wheat which will withstand much heat and aridity and produce a fair crop under almost any conditions. It resembles spelt, but is generally harder, more compressed, and redder. In this country it is used chiefly as cattle-food but it is extensively cultivated in Europe for human consumption, especially in the form of grits and "pot barley" and (in Russia) made into small cakes to be eaten with soup. Its cultivation extends back to prehistoric days, and was in olden times well-nigh universal in the countries bordering on the Mediterranean.

Hybrids of emmer and common wheat are much more resistant than true common wheat.

ENCHILADA, a Mexican dish which closely resembles the TAMALE (which see).

ENDIVE. See under the subhead of *Chicory, Endive, and Escarole* in CHICORY.

ENTRÉE, ENTREMETS. See the list of *Culinary Terms* in the APPENDIX.

ESCAROLE. See under the subhead of *Chicory, Endive, and Escarole* in CHICORY.

ESPAGNOLE, one of cookery's principal fundamental sauces, and used as a basis for many brown sauces. It contains the essence of a diversity of articles—ham, veal, and beef, several vegetables, a number of herbs and spices, fowls (old birds are taken for the purpose), and wine. The proper preparation and cooking require several hours.

ESSENTIAL, or Volatile, Oils. See the general article on OILS.

EULACHON, or Candle-fish, or "Columbia River Smelt," a rich, delicious, slender little fish of the North-Pacific coast, which reaches a maximum length of about twelve inches. It is placed on the market fresh, smoked, brined, kippered, and canned. It is one of the fattest of fish, but its fat is delicate in flavor and easily digested. If a wick be pulled through a dried eulachon it will serve reasonably well as a candle!

EVAPORATED FRUITS. See DRIED, EVAPORATED, AND DEHYDRATED FOODS.

EXTRACTS. See BEEF EXTRACT, FLAVORING EXTRACTS, VANILLA EXTRACT, etc.

FARINA. The word "farina" indicates properly the flour of any grain or root, but as used generally in this country it signifies either white cornmeal used for puddings and other desserts or a wheat product similarly employed and also (and especially) as a breakfast "cereal."

Wheat farina is for other purposes also known as semolina. It consists of wheat "middlings"—small, hard particles of wheat left in the bolting machine after the finer flour has passed through its meshes. The best—that used in the manufacture of macaroni, spaghetti, and similar pastes—is obtained in the milling of the very hard durum, or macaroni, wheats.

Semolina as an individual product is perhaps most popular in France, where it is prepared in a great many ways, including a favorite variety of fine wheat bread known as *pain de gruau.* In Italy it is also used with other grains and meal in making POLENTA (which see).

FENNEL. Common Garden Fennel, or Sweet Fennel, is chiefly cultivated for its young leaves, which are excellent for mixing in salads and for garnishing. It is also cooked as a vegetable—generally tied in bunches—and is boiled with fish and some other foods. It is very popular in Italy, especially in the vicinity of Naples. The seeds (as also those of the common, or bitter, fennel) are used for seasoning. The plant runs wild as a weed in California.

Florence fennel is a different species grown principally for the bulbous, lower parts of the leaf stalks, which are blanched and eaten raw like celery, or boiled as a vegetable. They are very sweet and aromatic.

FENUGREEK-SEED, the fruit of an Old World herb, cylindrical or compressed, and from one to two inches in length, brownish-yellow, peculiar-smelling, bitter-flavored, and mucilaginous. It is little used as human food here except as an ingredient of curry powder, but in Egypt it is mixed with wheat-flour in bread-making, and in Greece is added to honey. In Oriental countries it is eaten by women to promote fleshiness.

Florence fennel

FERMENTATION, in its broadest sense, is the chemical change by which organic substances are decomposed and re-combined in new substances or compounds. *Ferments* are of two classes—"organized," or living, as yeasts and lactic acid bacteria; and "unorganized," as diastase and pepsin.

In the significance most widely used and understood among laymen, fermentation is the chemical change produced in liquids containing sugar in solution by which the sugar is converted into a liquid, *alcohol,* and a gas, *carbon dioxide.* Wine and beer fermentation is called *vinous.* Under favorable conditions of temperature, etc., fermentation continues until the growth of the yeast cells is stopped by the exhaustion of the particular chemical components adapted for their subsistence, or by the formation of other substances in quantities inimical to their growth. As already noted, alcohol is one of the chief results of vinous fermentation, but it is itself adverse to yeast growth, and will stop it entirely, and with it fermentation, if a sufficient quantity is added to the liquid, or is formed in it.

Vinous fermentation is followed under certain conditions by *acetous fermentation*—a class of acetic bacteria oxidizing the alcohol and producing vinegar.

The "souring" of milk is *lactic fermentation*—some of the milk-sugar being converted by the action of lactic acid bacteria into lactic acid.

Putrefaction of meat, etc., is *putrefactive fermentation.*

FERMENTED MILK. See subhead in the article on Milk.

FETERITA. See Sorghum.

FETTICUS, one of the many names for Corn-salad (which see).

FIG, a fruit familiar to everyone in a dried condition and as put up in sirup, but less well known as a fresh fruit for it is too perishable to be sold at any great distance from the growing districts except by stores which are able to charge high prices or in places with a Latin population sufficiently large to ensure quick sales.

Dried figs are both imported and of California production. The best are the "Smyrnas," so named from the port of Smyrna, formerly grown only in the Menderez, or Meander, River Valley in Asia Minor but now also to an increasing extent in California from trees of the same varieties. Greece, Spain, Portugal, and Italy add a good many million pounds to the import total, but the average quality —particularly of those from Greece—is inferior. As the California climate and soil are admirably suited to the production of fine figs, American orchards should soon be able to fully supply the domestic market and to compete for the world's trade.

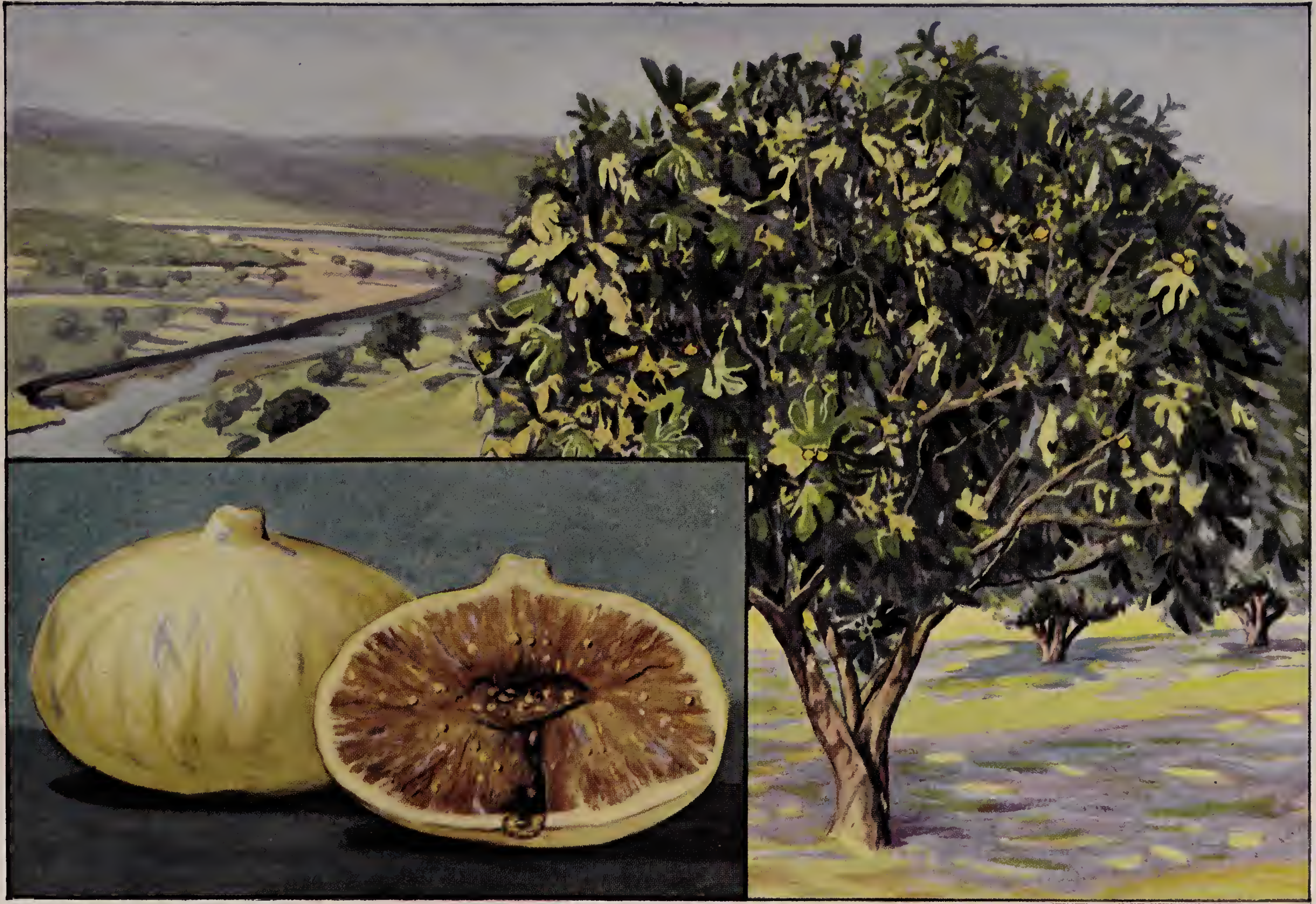
Figs in sirup are almost exclusively from the southern states.

The fig consists essentially of a sweet, seedy pulp enclosed in a layer of "meat" and covered with a thin skin—the sugar (in the dried fruit) frequently exceeding 62%. There are several hundred varieties, covering a wide range of color and differing considerably in appearance—from onion to pear-shaped and from nearly white to dark purplish or black.

With a few unimportant exceptions, the cultivated trees are all alike in bearing only female blossoms, but otherwise they are divided into two main classes—those which require and those which do not require pollination in order to produce edible figs.

It will be understood that the fig is botanically a fruit *receptacle.* The blossoms appear *inside* it, and the true fruits, if any are developed, consist of the seeds that follow the pollination of the blossoms—but the only possibility of their being fertilized is by means of the fig wasp, *Blastophaga grossorum,* a little insect about one-eighth of an inch in length whose life is dependent on the fruit of the wild fig-tree. The wild fig is known as the "caprifig" and such pollination is consequently termed "caprification."

The varieties which develop their receptacles into edible figs without pollination are much the more numerous. Their fruits, or "seeds," are merely little empty shucks but this is unknown to the average consumer and would not particularly interest him if he did happen to observe it. Of these are all the figs produced in the



THE SMYRNA FIG

southern states, and all the older plantings of California, and most of the figs grown in other parts of the world.

The little fig wasp and the caprifig are nevertheless of high commercial significance because (1) excepting only the fig-growing countries themselves, the great bulk of the world's fig consumption is of the dried fruit; (2) "Smyrna" figs, incomparably the finest for drying, will not develop—will drop off when only about one-third grown—unless their blossoms are pollinated; and (3), as already noted, only the fig wasp can effect the pollination, and the wasp cannot propagate its species without the caprifig's successive crops. The world's entire harvest of high grade dried figs rests upon the action of this tiny winged creature and the tree which it has adopted as its own. As, unlike the fig regions of the Old World, there are no native caprifigs here, every California grower of Smyrna figs must provide himself with a sufficient number of wasp-inhabited caprifig-trees to supply his needs.

The Common, or True, Smyrna fig—the chief variety both of Asia Minor and of California Smyrna orchards—is known as, simply, "Smyrna," or by various other titles—as Lob-Ingir (Turkish for "juicy fig"), Erbelyi, and (in California) "Calimyrna." Both tree and fruit are shown in the color-page facing 192. Large fruits reach three inches in diameter. They are characteristically squat-shaped, smooth, and waxy; the skin, very thin and light yellowish; the flesh, white or greenish white; and the pulp, dark amber.

Between the Smyrna varieties and those which do not need pollination are types which ripen the first crop of figs without caprification, but which require it for their second, and vice versa.

Paddock & Fowler Co.

A "wheel" of Greek figs.

Now as to the manner in which the little wasp propagates and the way in which its habits are diverted by the fig culturist.

In natural course, the female wasp, on coming to fecundity, crawls out from the eye of the caprifig in which she has developed in order to seek an immature fruit of the next caprifig crop for the purpose of depositing her eggs in it. Her new home selected, the wasp forces her way through the eye of the fig and by means of her ovipositor pushes her eggs one at a time down through the short styles of the caprifig flowers. Her duty completed, she herself soon succumbs, leaving the continuation of the cycle to her progeny, but she has not only fulfilled her special mission of the reproduction of her species—she has also fertilized one or more blossoms of the caprifig, for in her exit from her first caprifig home she had unavoidably and quite unintentionally covered herself with its pollen and had carried it with her into the new caprifig.

It is just before the wasps emerge from the first caprifig crop, and when the Smyrna figs are about the size of hazelnuts, that the fig culturist plays his part. He gathers the caprifigs (each one containing from 500 to 1000 wasps), attaches them to reeds, and suspends them in the branches of his trees—or, as latterly in California, places from 10 to 100 (or more) caprifigs, according to the size of the tree, in wide-mesh wire baskets (or some similar contrivance) and hangs one in each tree. When the wasps emerge among the branches of the tree to which they have thus been transferred, they immediately seek, and struggle into, the immature fruits pendant on the branches surrounding them—quite unwitting that the tree is not the caprifig of their normal destiny. Inside the strange fig, the wasp crawls around searching for suitable blossoms in which to deposit her eggs. The styles in the cultivated fruit are too long, however, and she fails in her efforts. She has though accomplished another mission in the interest of mankind, for in her persistent hunt for suitable styles she has pollinated practically all the blossoms of the fruit she has entered. Thus pollinated, the fig quickly develops, and its seeds, unlike those in the fruits of uncaprified trees, are full and fertile, with the delicate nutty flavor which

Brown Bros.

A California fig orchard

(added to its high percentage of sugar and other good qualities) has made the Smyrna fig famous.

The fruits are permitted to attain their maximum degree of sugary ripeness—they are left on the tree to shrivel and fall of their own volition — or are at most helped off by a gentle shaking of the branches.

Next comes spreading on trays and a slow drying, generally or chiefly in stacks, then washing in brine, drying, and a final rest in sweatboxes prior to packing.

The dried fruit can be kept without deterioration for three months or so if stored in a uniform temperature of about 40° Fahr.

Of the other class of figs—those which do not require caprification—the most popular California varieties are the White, or "Adriatic," or "White Adriatic," and the Mission, or "California Black."

The White Adriatic is variable in shape, of thin, greenish skin, and pink-red (or dark violet and white) pulp. Good grades are delicious as fresh fruit.

The Mission—the fig of the earliest settlers—is long and roughly top-shaped, with very dark, reddish violet skin and dark, amberish red pulp, coarse in texture but sweet. It is easily and abundantly grown under the most diversified conditions.

Of the two the Mission is the better drying fig, the dried fruit being decidedly agreeable in flavor, though it never approaches the Smyrna quality.

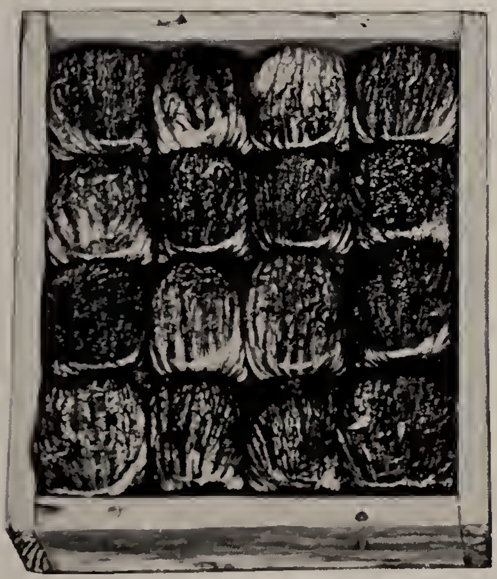
Packing, etc. The two principal styles of packing dried figs are as *Layer* (also known as "pulled," or "eleme") and *Locoum* (or "lacoum").

In packing Layer Figs, the fruit is first "pulled" and drawn between the fingers and thumb into a flat, disk-like form, and then the back part is split to allow still more spreading. In pulling, the "eye" part is brought into the center of the disk. The "pulled" figs are then placed in "layers" in boxes and the piling up of the boxes presses their contents.

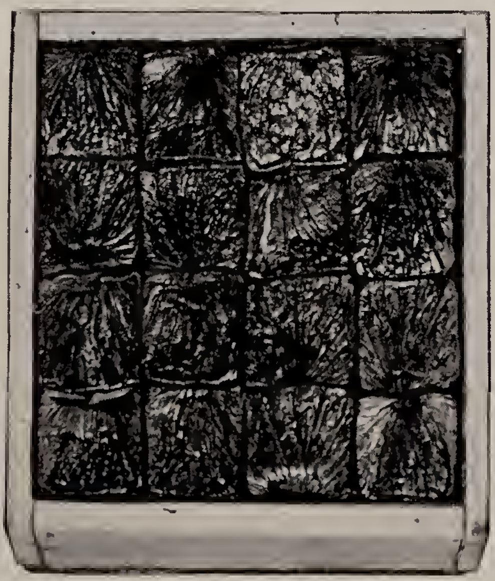
Layer figs are graded from "choice" to "extra fancy," and by size of spread, 1¾ inch to three inches.

"Eleme" is a Turkish word signifying "selected."

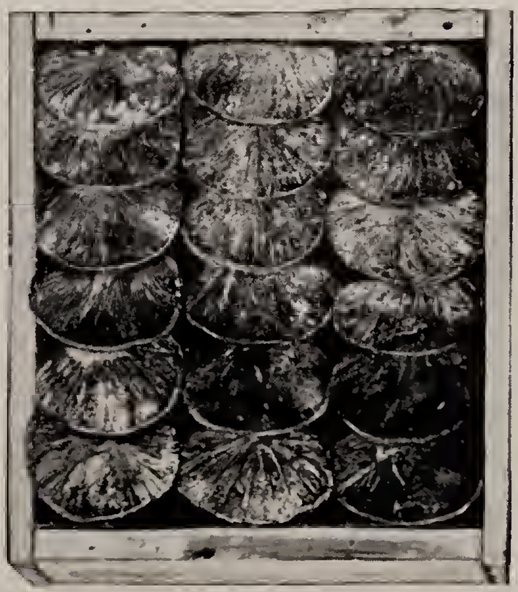
Locoum Figs are those packed in the shape of cubes (true cubes or rounded)—"locoum" being the Turkish name for a square-shaped sweetmeat. The title also



Locoum figs
American style (rounded)

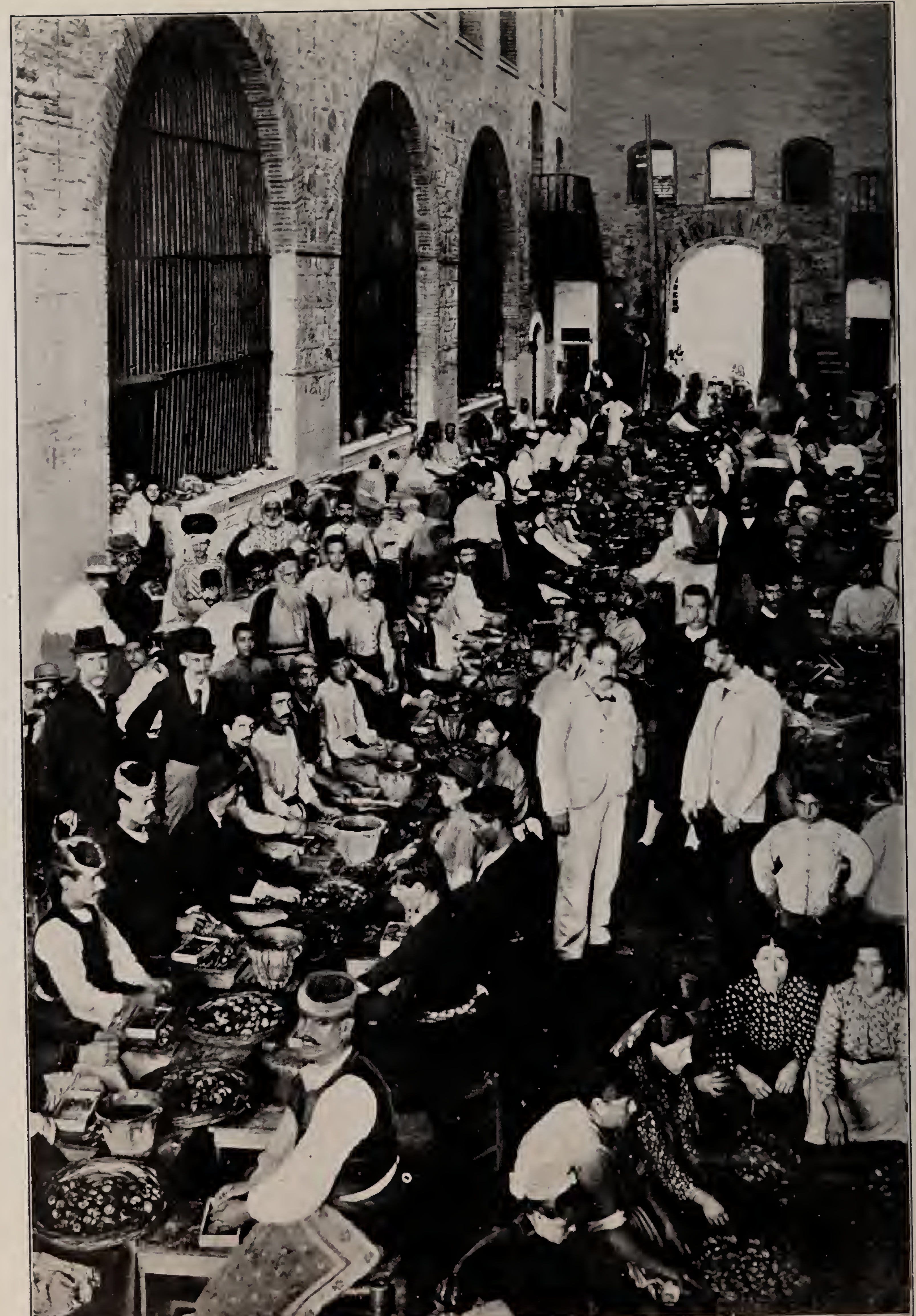


Locoum figs
London style (squared)



Paddock & Fowler Co.

Layer figs



Paddock & Fowler Co.

A Smyrna fig-packing establishment

stands for quality, because only thick and meaty figs lend themselves to this style. The square "English," or "London," packing shown in the center box in the illustration at the foot of page 195 has the advantage that the absence of air-passages is an additional safeguard against the deterioration of the fruit, and is usually preferred in New England markets. Elsewhere, the rounded "American" is the best selling type. "American" locoums are also known in the trade as "pulled figs."

There is in addition a fairly important packing of stuffed figs—filled with nut meats mixed with chopped figs or with any other of the materials used in the stuffing of dates.

Some choice qualities of both the "plain" and "stuffed" are put up in fancy boxes, baskets, and jars, but the greater part of the supply, from the very finest "Smyrna Extra Fancy Three-inch Layers" to the more ordinary types, comes in bulk, chiefly in boxes, but also in drums.

"(Smyrna) naturals" are the inferior fruits, shipped loose in bags and boxes—the term "natural" signifying that they have not been compressed in packing. They are serviceable for filling sweet biscuits, candies, etc., and for household use stewed and in various other ways.

Minor grades are in Europe utilized in large quantities in the manufacture of brandy and, in Germany, as a substitute for coffee.

Southern Figs. With a few exceptions, the climate of the southern states is not particularly suitable for either the growing or the drying of Smyrna figs, but a large industry has been developed in the preserving of other varieties, the fruit being gathered after maturity but while still firm. The best known product is the skinless fig put up in sirup. The skin is commonly removed by dipping the fruits in a hot lye solution—followed by thorough washing to get rid of the lye. During the entire process of preserving, the fig is not touched by human hands after the preparatory processes of sorting and inspecting the fresh fruits. The Magnolia is the variety most commonly cultivated in Texas, the Celeste (or "Celestial") and the Brown Turkey elsewhere in the South. The Magnolia is a large fruit of amber skin and pinkish-amber pulp. The Celeste averages small to medium, is pear-shaped, violet and purplish brown of skin, and whitish to pink in flesh and pulp. The Turkey, with violet brown or coppery-brown and greenish skin, ranges from medium to large, is broad, pear-shaped, with flesh and pulp whitish or amberish blending into pink.

FILBERT (see the second color-page facing 346), **Hazelnut, Cobnut,** fruits of several species of *Corylus* bushes or trees, borne in clusters, each enveloped in a husk which opens as the nut ripens. The titles of "filberts" and "hazelnuts," or "hazels," are variously used. By one widely spread custom, "filbert" is applied to the nut imported from Europe, or grown here on trees of European species. By another classification, filberts are those with fringed husks extending beyond the nuts; and hazels those with husks shorter than the nuts—cobnuts being those with husks of about the same length as the nuts. When ripe and deprived of the husks, only an expert can classify them with certainty, for there are several styles and sizes of each, but filberts are generally oblong; the hazels, small and roundish; and the cobs large, roundish, and angular.

The chief varieties of the native American nut are the Common and Beaked (in two allied varieties)—the term "beaked" referring to the husk, not to the shape of the nut. The Common is the more desirable, its kernel being particularly sweet. Both Common and Beaked are, however, too small to be of much commercial value.

The best known imported varieties are the Sicily and Naples. The Sicilian nuts are generally round; those from Naples are characteristically oblong.

"Barcelona nuts" are cobnuts, grown here and also imported, the latter generally kiln-dried and from Barcelona, Spain.

In England, the fresh green nuts are much liked for dessert service.

FILLET, or Filet. (1) A market term for the tenderloin (see Beef and Pork). (2) A culinary term for a strip or band of meat or fish without bone. *Filet mignon* is a small tenderloin steak.

"FINGER ROLLS," or Salt Sticks, or Soup Sticks, Italian bread made in stick form, from twelve to eighteen inches long. The term is also applied to finger-shapes of crusty bread, cut in various sizes and thicknesses, to be eaten with soup.

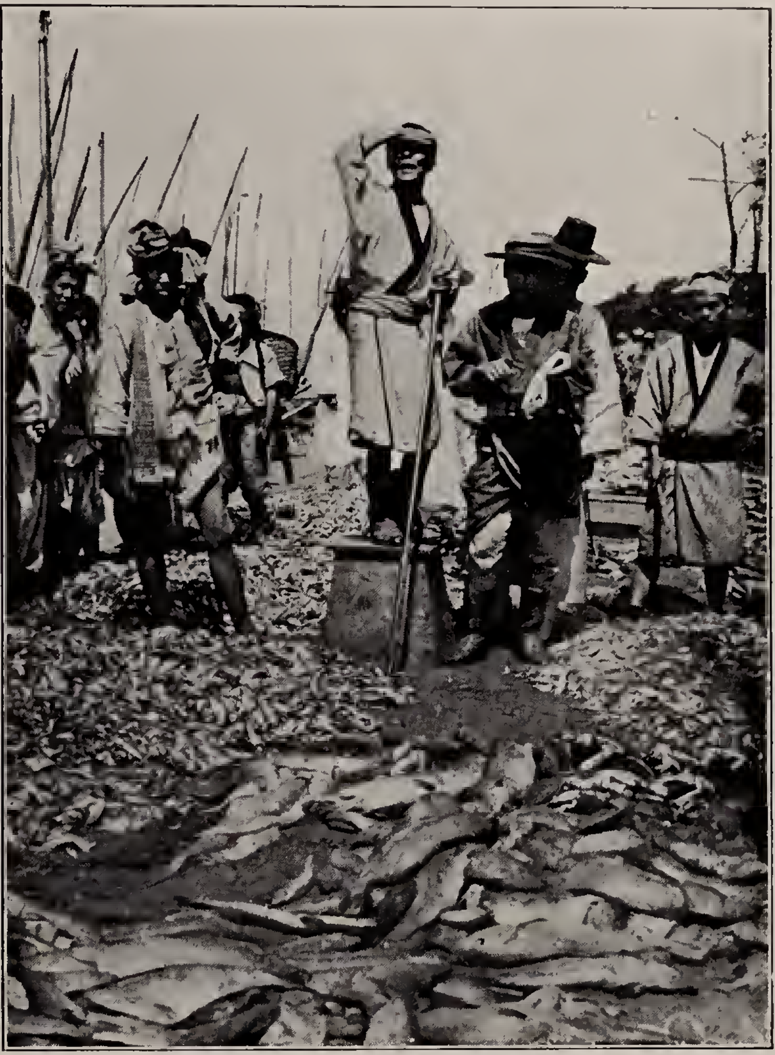
FINNAN HADDIE. See Haddock.

FISH. The annual catch of fish in the United States—sea, lakes, and rivers—averages more than 2,000,000,000 pounds, most of which is consumed within our own borders. To obtain the actual quantity of food represented, the figures must be considerably reduced, as the loss of weight in dressing varies from 15% to 50%. To

Kester & Co., Munich

The fish market at Munich on Good Friday the net total is added the importation of two to three hundred million pounds—fresh, salted, and canned. The final figures sound very impressive—yet, if due allowance be made for the large per capita consumption in some parts, the result represents only a small per capita proportion for the general public.

Public opinion has been enlightened from time to time by medical and other scientific authorities on the excellent nutritive properties of fish, but a great many people still look upon it as an "extra" course, an exclusively Friday meat, or (in the case of canned goods) as an emergency article. A more general use of fish would tend to decrease the cost of living by relieving the pressure of our ever-increasing numbers on the beef supply.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A Japanese fish market

A bulletin of the United States Bureau of Fisheries succinctly declares the "one-day-a-week nature" of the fish business to be "one of the most serious deterrents to an increased consumption of [locally caught, fresh] fish. The fisherman's business is largely governed by wind and tide — conditions beyond his control. He must catch fish whenever he can, but hold them, by expensive icing, against the risk of spoiling until the one fish-day of the week. The consumer must buy when everybody else is buying and the dealer must obtain from one day's sales a profit to cover six days' expenses. Cheaper and better fish will be obtainable if the dealer and consumer will cooperate to make every day a possible fish-day."

It is curious to note the tenacity of certain erroneous impressions concerning fish as a food. It is still commonly believed that it is an especially good brain stimulant because of the phosphorus contained in the flesh. As a matter of fact, fish contains little if any more phosphorus than beef, and even if it did, there is no reason to believe that it would therefore exercise any perceptible influence on the brain. On the other hand, many people eschew fish because they fear ptomaine poisoning — yet, under conditions of proper care and cleanliness, there is no more danger of poisoning from fish than from many other articles of food.

Stripped of all prejudices and traditions, fish is very similar to lean beef in its food composition. The many varieties differ considerably in their proportions of the different elements, but they are all similar in that they supply the human system with a considerable percentage of protein—muscle and flesh building nutrients.

It will be noted that in the preceding paragraph fish is described as tallying closely with *lean* beef. The average cut of beef contains a considerable percentage of fat—a much greater proportion than that found even in "fat" fish. One excepts fish canned in oil. Their flesh often shows a higher fat percentage than medium-fat beef, but this is not cited as a merit, their mixed oil being, with most people, less easily digested than an equal quantity of beef fat.

Among the fishes most abundantly supplied with fat are butterfish, grayfish, herring, mackerel, salmon, shad, trout, tuna, and turbot.

The digestibility of fish varies with the different kinds. As a general rule it may be stated that those with flesh of fine texture are the more easily digested, and that fresh fish is more easily assimilated than smoked or dried. Canned uncured fish corresponds very closely in digestibility with fresh fish of the same variety.

In buying ''fresh'' fish, true freshness should be insisted on as essential. The flesh should be firm, and the skin and eyes bright. Avoid any whose meat is so soft that the pressure of the finger leaves a mark. Cleanliness both in storing and handling are very important.

Most fish are at their best just before spawning time (except shad, which is considered the choicest when spawning) and when very fresh (except halibut, which improves in flavor with a little age). After spawning, fish lose greatly in quality—the flavor is less desirable and the flesh becomes soft.

The housewife will do well to remember that the ordinary temperature of a cooling room or refrigerator is not cold enough to keep fresh fish in prime condition. Unless to be used immediately, it is best buried in fine-cracked ice. Reasonably prompt use still remains desirable, as otherwise it will lose in flavor. For com-

Jacques Boyer, Paris

Fishing along the seashore near Biarritz, France mercial shipment and storage it is quickly frozen at the lowest temperature obtainable—5° Fahr. or lower if possible—and glazed by passing several times through a tank of cold water, the water freezing to a complete ice casing. It should be held thereafter at the lowest possible point between 0° and 15° Fahr. Large fish are frozen separately; medium-sized and small fish, a number together, in pans.

All fish should be thoroughly cleaned before cooking, and green vegetables should be served with it just as with meat. The latter point is often overlooked.

Dried, salted, smoked, and pickled fish should be kept out of the sun and as cool as possible. Pickled fish must be kept immersed in the pickle, and the container should be covered. If the brine dries out or leaks away in transit or in the cellar, rebrine at once.

Smoked and cured fish of all kinds are best in cold weather.

See also the general article on SHELLFISH.

FISH-BALLS (Canned), made of haddock or similar fish mixed with potato-flour and other cereals and put up in fish bouillon, generally in one-pound cans. They are popular in Scandinavian circles. They are heated in the can, or taken out and fried or baked.

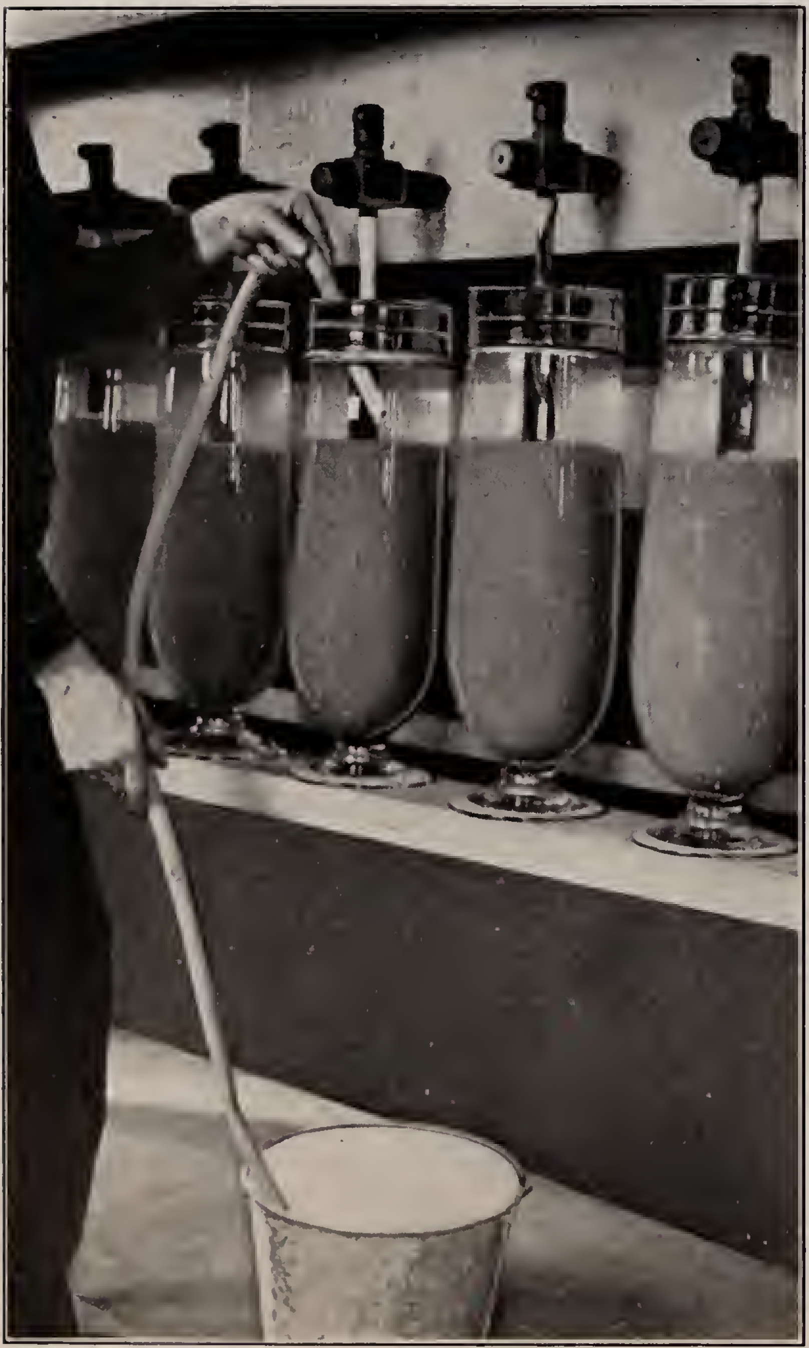
FISH CULTURE, or Pisciculture. Propagation of the principal food fishes is conducted on a steadily expanding scale in the United States and the results long ago demonstrated the immense national profit derived. Many important fishes would in all probability be extinct to-day if the hatcheries had not supplied billions of young fish to help take the place of those harvested from the waters for human consumption. Such assistance is especially necessary in the case of fresh-water fishes and such salt-water fishes as the salmon and shad, which leave the ocean to deposit their spawn in river beds and thus make total extermination possible.

The greater part of the work is now performed under the jurisdiction of the United States Bureau of Fisheries, supplemented by that of the state Fisheries Commissions and various sportsmen's associations and clubs. The United States Bureau maintains a number of hatcheries along the coast, in the chief shad and salmon

W. F. Roberts Co.

Bass spawning pond showing artificial nests rivers, and at various points along the Great Lakes. Their product is variously utilized—part of it is distributed in the natural spawning grounds of the immediate vicinity; great quantities are shipped, principally as the very small "fry" and the larger (but still small) "fingerlings," to all parts of the country for the stocking and replenishing of ponds, rivers, and lakes; and a small percentage are brought to maturity for breeding purposes.

The commercial fisheries constitute the principal source of the fish eggs handled by the Bureau, vast numbers of eggs that would otherwise be sent to market in the fish and become an almost total loss, being obtained for incubation by experienced spawntakers. In the case of some important fishes—notably, but not exclusively, the salmons of the Pacific Coast—where commercial fishing does not extend to or is not permitted in the spawning areas, the ripe fish are specially caught in seines or traps—the object being the higher percentage of fertilization obtained artificially, and the greater measure of protection afforded the eggs (and their resulting young) from their many enemies and from the almost innumerable other possible fatalities during and immediately after the hatching period.



Bureau of Fisheries

Whitefish eggs in hatching jars

The eggs are first fertilized by the addition of milt from the male fish and are then placed in the hatchery. With some varieties, the hatching apparatus consists of wire-cloth baskets held in troughs of varying size. Others, as for whitefish, shad, and lobsters, generally consist of glass jars, the fry as hatched being discharged into glass tanks.

That portion of the fry which is not distributed as noted above, is held in troughs or artificial ponds until six or seven months old. A seven-months', trough-raised, fingerling salmon averages from 2½ to three inches in length.

Fifty-six species of food-fishes are represented in the distribution figures for 1921. Fully 93% of the output consisted of the important commercial fishes, including anadromous species (i.e., those ascending rivers to spawn) of the Atlantic and Pacific seaboards—the salmons, shad, alewife, and striped bass; marine species—the cod, haddock, pollack, and flounders; fishes of the Great Lakes—whitefish, lake herring, trout, pike-perch, and yellow perch; and the buffalo-fish and carp of certain inland streams.

Though the number of fish produced for stocking other interior waters is small by comparison (it represents only 7% of the total) the work is of value and large popular interest. The more important of this class are the trouts, black basses, sunfishes, crappie, and catfishes. These are furnished free to interested persons for either public or private waters.

The total output of the hatcheries during 1921 was close to five billions of fishes and fish eggs—including more than two hundred thousand fingerling fish from 1¼ to four inches in length, between three and four billion fry, and more than a million fertilized eggs. Their destinations included every state, the territories of Alaska and Hawaii, Canada, Mexico, and several European countries.

Bureau of Fisheries

Trays of eggs of the chinook salmon—those in the center tray are a little more than one-third natural size

In its overland distribution the Bureau operates several specially constructed railroad cars, equipped with air-pumps and other necessary appliances for the transportation of living fish, in addition to supplementary service by special agents traveling in ordinary baggage cars.

FLATFISH. See FLOUNDER.

FLAVORING EXTRACTS, as generally familiar to the consumer, consist of small percentages of true extracts, or essences, or their chemical duplicates or imitations, in alcoholic solutions. The aromatic characteristics of a great many spices, nuts, herbs and fruits, and some flowers, are thus marketed, among the best known being almond, anise, banana, celery, cherry, cinnamon, cloves, coffee, ginger, lemon, maple, nectarine, nutmeg, orange, orange-flower, peach, peppermint, pineapple, pistachio, raspberry, rose, strawberry, vanilla, violet, walnut, and wintergreen.

A majority of natural essences are obtained by extracting the aromatic essential oil from the blossoms, fruits, fruit rinds, or roots—or the whole plants—by expression, absorption, distillation, or maceration. The first method, that of *Expression,* can only be employed when the oil is very plentiful and easily obtained, as in lemon peel (see LEMON OIL). The second, *Absorption,* is generally accomplished by steeping in alcohol, as vanilla-beans (see VANILLA EXTRACT). The third, DISTILLATION (which see), is sometimes comparatively easy, as when following maceration in making peppermint extract (see MINT), but in many cases it requires expert chemical knowledge and high skill.

The distinctive flavors of nearly all fruits, in the popular acceptance of the word, are very desirable adjuncts to many food preparations, but unfortunately there are only a few from which it is practicable to obtain a concentrated flavor extract of the necessary strength. Among those which lend themselves readily to the manufacture of pure extracts the most important are lemons, oranges, and vanilla-beans.

A majority of other concentrated fruit flavors—as apple, apricot, banana, currant, grape, loganberry, and plum—are produced by synthetical combinations of compound ethers, together with special oils or the extractive matter of true fruit, etc., the desired colors being obtained by the use of coal-tar dyes or vegetable tinctures.

Some artificial flavors—as vanilla and wintergreen—are almost exact duplicates; others are merely good imitations. Care should be exercised to avoid using an excess of any imitation flavor, as the result may be unpalatable.

"Terpeneless" flavors are those which have had the terpene, or hydro-carbon, components removed from the essential oils. They are stronger, more easily soluble (and therefore more easily and economically made), and better keeping. On the other hand, they lack some of the richness of whole-oil extract.

Non-alcoholic flavors, if of true fruit, come in paste form, the carrying agent being the natural pectin with (generally) the addition of a little sugar to avoid over-stiffness. Imitation non-alcoholic flavors usually have gelatin or vegetable gum as the carrying agent.

FLITCH of Bacon, the English name for a whole side of salt pork. The term "flitch" is also sometimes applied to any large piece of side meat, and to a strip of fish meat smoked, or suitable for smoking—particularly in the latter case, to strips of halibut.

FLORENCE OIL, a title sometimes used for high grade OLIVE OIL (which see).

FLOUNDER, or Flatfish, a fish with a flattened body and both eyes on the upper, generally more highly colored, side. The type includes small fishes such as the DABS, the highly valued European SOLE, and large creatures such as the HALIBUT, PLAICE, and TURBOT (all of which are treated under their own heads).

In specific market usage the title "flounder" and its variant "flatfish" are confined to the smaller members of the group, found at the mouths of rivers and along the coast. The flesh of several varieties is excellent—the fish being often skinned, filleted, and served as "sole." The most important are the Arctic and Eel-back flounders of northern latitudes; the greyish-brown Pale flounder, or Craig fluke, south to Cape Cod; the white-spotted, light olive-brown Summer flounder, or "plaice," from Cape Cod to the Carolinas; the similar Southern flounder, from Charleston southward, and around the Gulf; and the Great, or Starry, flounder of the Pacific Coast. The Summer, Southern, and Great flounders reach in large specimens a weight of fifteen pounds or more; the others range from very small—five to the pound—to five pounds each.

FLOUR, grain of any kind ground to fine powder—as wheat-flour, rye-flour, and corn-flour. In general use, except when otherwise specified, the term signifies wheat-flour.

Its chief styles are the "white" Patent (from the inner part of the grain) and Graham, or Whole Wheat.

White flour does not contain either the bran-coats or the germ of the wheat (see WHEAT). Their removal makes it easier to reduce the grain to the desired degree of fineness. It also results in a much whiter flour and one of considerably better keeping qualities.

Manufacture includes many processes—cleaning, the mentioned separation of germs and bran, and several grindings. The grinding is, in general modern practice, between steel rollers. From the whole grain to the barreled or sacked flour, all the work is mechanical—the product is never touched by human hands.

A good milling wheat will yield from 70% to 80% of fine white flour.

A true Graham, or Whole Wheat, flour—the terms should be synonymous—contains all of the grain and is distinguished both by the particles of its branny covering and by a considerable percentage of "middlings"—mealy particles that in white flour are removed by bolting for regrinding. Imitation Graham flours are made by blending bran and (generally) low grade white flour, with perhaps also some inferior middlings.

Though the full definition of Graham flour requires the retention of the germs, it is nevertheless better to remove them unless early consumption is assured, as their presence not only impairs the keeping quality of the flour but also—prior to the point of any noticeable deterioration—is liable to cause intestinal disturbances by changes effected in the flour and, consequently, in bread or other products made from it. See further comment under the subhead of *Graham Bread* in the article on BREAD.

Average analyses of wheat-flour show from 8 to 12% water; 8 to 15% protein, 1 to 3% fat, and 60 to 80% carbohydrates. White flour shows a little more carbohydrate and a little less protein than Graham flour.

The following rules may be used as preliminary tests for white flour:

First, look at its color. If for bread-making especially, it should be creamy-white, for this generally indicates a strong flour—one made from hard wheat, or sufficiently blended with durum, or other hard-wheat flour, and containing a good percentage of gliadin. If for pastry, which does not require so much gliadin, a starchy-white color is acceptable. If it is so white as to have a bluish or greyish cast, or if it contains small black or bran specks, it is not desirable for either purpose.

Next, examine its adhesiveness. Make a dough by mixing a small quantity with water. If it works dry and elastic, it is good; if soft and sticky, it is poor. If when pulled apart it breaks short, it is of "soft" wheat and deficient in gliadin, and therefore not suitable for bread-making, though if it is good in other respects it may be satisfactory for pastry, etc. If the dough is tough and tenacious, the flour contains a large percentage of gliadin.

Flour should be sifted so that the particles may be thoroughly disintegrated before baking. If cold, it should be warmed before use. This treatment improves the color and baking properties of the dough.

The place where flour is stored must be moderately cool, dry, well-lighted, airy, and never exposed to a freezing temperature, nor to excessive heat. An even temperature of 70° to 75° Fahr. is best if it is to be used within six months; that to be held longer should be kept cooler. Whether in a barrel or sack, it should always be placed on a rack at least two inches from the floor in order to allow a current of air to pass under and prevent dampness, and it should not be placed in contact with grain or other substances which are liable to generate heat.

Flour is peculiarly sensitive to atmospheric influences—hence it should never be stored in a room with any material which emits an odor. Any smell perceptible to the human sense will be absorbed by it. A damp cellar or a close attic, or loft, is especially unsuitable.

Flour of good quality improves in flavor and character up to about six months, and under proper conditions will retain its merit for a considerable time thereafter.

In some sections, there is a good demand for rye-flour, and retailers doing a "fancy" trade include in their stock such special varieties as barley, chestnut, potato, rice, and "Boston brown bread." The first four are chiefly imported.

See also CORN-FLOUR, CORNSTARCH, FARINA, GLUTEN, RYE, SELF-RAISING FLOUR.

FLUKE, a fish title which in England is largely interchangeable with "flounder" or "flatfish." It is seldom used here. For the "Craig fluke" see FLOUNDER.

FLUMMERY, a thick hasty-pudding made of oatmeal or rice, flavored with milk, bitter almonds, or orange flowers, etc. The title is applied also to various desserts of blanc-mange or fancy custard type. It originally signified oat bran that had been steeped in water and permitted to ferment slightly before boiling.

FOIE GRAS. The title "foie gras," literally signifying "fat liver," is applied specifically to the livers of fat geese. Those of fat ducks are similarly employed but the product is considered inferior and retails at lower prices.

One of the most famous industries of Strasburg and Toulouse, France, is the scientific fattening of geese for the enlargement of their livers. The birds are kept in special coops which prevent their taking exercise and are fed to the limit of their capacities. Their health is, however, carefully watched and the treatment is temporarily suspended in the case of any bird which shows even the slightest symptoms of sickening.

Foie gras is imported in jars or tins in four forms—*Foie gras au naturel, Pâté de foie gras, Purée de foie gras,* and *Saucisson de foie gras.*

Jacques Boyer, Paris

Feeding a "foie gras" goose

Foie gras au naturel consists of plain-cooked full livers, put up in tins of several sizes. It is intended for use in the preparation of aspics, etc.

Pâté de foie gras, the principal form, was invented at Strasburg toward the end of the eighteenth century by Clausse, then chef of the Governor of Alsace. The cooked livers, seasoned with wine and aromatics, and with cut truffles added, are filled into earthenware "terrines" for *Terrine de foie gras,* or pastry shells or crusts for *Pâté de foie gras en croûte,* and surrounded and covered with a forcemeat made of liver trimmings and pork. In the best grades the livers are whole; the lesser qualities are of cut pieces. The terrines are made in two styles—the "flat," called "casseroles," generally light yellow in color; and the "high," brownish-red in hue—both styles in various sizes holding one-eighth, one-quarter, one-half, and one pound. The pâté is also sometimes packed in earthen jars, elaborately ornate.

A good pâté when opened should have, covering the other contents, a quantity of white or yellowish fat, rendered from the liver itself during the cooking, and should give out an appetizing odor. If the liver appears dry and bare of grease and gives out an unpleasant odor, the jar should be returned to the seller to be exchanged for another. This condition may be found occasionally, no matter what care has been exercised in putting up the product.

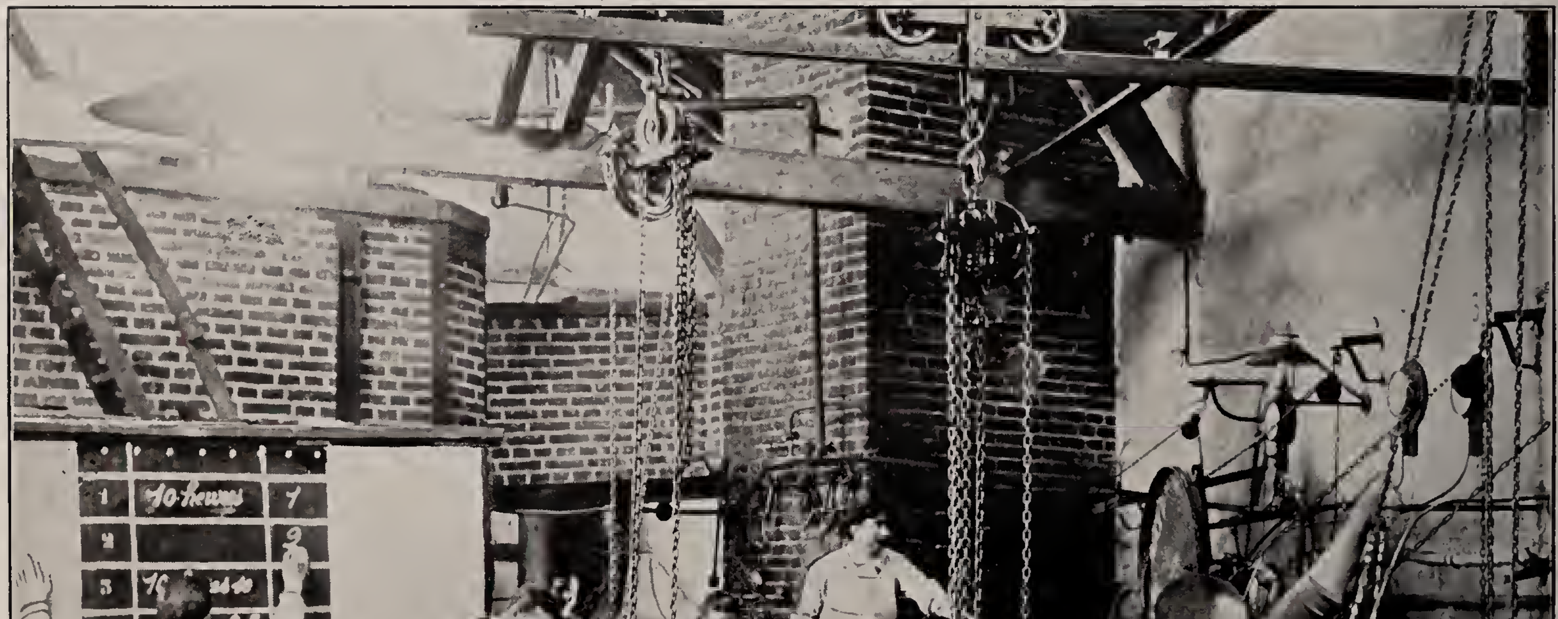
Only pâté de foie gras made in the country or district in which the geese are reared and fattened is really worthy of the name, as a first-class product can only be made from fresh livers. A pâté made from preserved livers is never as rich because the liver necessarily suffers in both aroma and general delicacy from the second cooking.

Pâté de foie gras should always be served very cold—only in that condition is the full fine flavor obtainable. It is best to set it on ice for several hours before serving. If ice is not obtainable, the terrine should be submerged in the coldest water obtainable and kept there as long as possible. This precaution is naturally most important in summer and in warm countries.

Purée de foie gras is made of whole livers and liver trimmings with some pork added, well seasoned and cooked, and then pressed through a fine sieve. Small pieces of truffle are added and the paste is then canned like other potted meats.

Saucisson (sausage) *de foie gras,* put up in cans of cylindrical shape, consists of the liver cut in small pieces, pistachio nuts, and pieces of truffle, the whole mixed with liver trimmings and pork, then forced into casings and cooked.

FONDANT, soft, white candy made by boiling sugar to the ''ball'' and working it till perfectly white. Cream of tartar or glucose may be added. It is used in the manufacture of candies such as bonbons and chocolate creams, and (when softened by heat) for icing cakes.



Jacques Boyer, Paris

Cooking pâtés de foie gras

FOOD VALUES—The composition of the foods we eat, their purposes, and the correct dietetic proportions. There is much yet to be learned concerning the comparative effects of foods taken into the human system and the complicated chemical processes by which they are converted in the digestive organs into substances which make blood, bone, muscle, nerves, and brain, but the advance of knowledge has been very rapid during the last few decades and sufficient has been ascertained to enable one to form a very fair idea of the needs of the "machinery" which enables him to live.

A general consideration of the subject is simplified by bearing in mind three requirements—(1) that the food put into the stomach contain all the chemical elements of which the body is composed and by which it functions, in forms adapted to its use, and in quantities sufficient for growth and replacement; (2) that it carry a proper supply of vitamins; and (3) that it include additional material that may be easily and economically utilized as energy.

First in importance are water, protein, certain additional chemical elements (or "minerals"), and vitamins. These, if supplied in suitable forms and proportions, will do all the main work of building and functioning the body and replacing the inevitable daily loss by wear and tear. Without them is neither growth nor replacement, nor even life.

Water one takes as a beverage, and in beverages, and in foods generally.

Proteins are nitrogenous, organic compounds of very complex character. None has yet been completely analyzed. The simple forms contain sulphur, carbon, hydrogen, and oxygen in addition to the preponderant nitrogen. They are found in all human foods—for they are essential to all life, both plant and animal—but the percentage of content and their composition vary greatly.

Protein is reduced to amino-acids and as such passes into the system, there to be reassembled as human protein. Its food value rests upon the identity of its amino-acids and their respective proportions. Gelatin, for example, is a true protein, but it lacks two important amino-acids and is therefore incapable of supporting life.

Protein of high food value is plentifully contained in meat (lean meat is chiefly protein and water), fish, milk (in the caseinogen, or casein, and the lactalbumin of whole and skimmed milk alike), cheese, and eggs (the whites are essentially a solution of albumin, a simple protein). In a majority of other foods (as bread) the percentage is too small to be life-sustaining unaided by other supplies. Ripe peas and the ordinary ripe beans show a high protein content but it is of deficient quality. Though both are important auxiliary foods they are not entitled to place among the chief protein sources. Soy-beans and peanuts take higher rank and seem suitable as partial or occasional substitutes for meat, etc.

Minerals (chemical elements) to the number of twelve (including the mentioned five of simple proteins) are of essential importance. Nine of them may, however, ordinarily be passed without concern as they are automatically supplied by any diet that fulfils the protein and other requirements. The remaining three are calcium (the great bone material), phosphorus, and iron. They are contained in most foods, but in many cases the representation is very meager and it frequently happens that the family diet does not include sufficient amounts. They therefore require specific consideration. Milk is the most desirable of all calcium-giving foods (it also increases the phosphorus yield and adds a little iron); cheese is rich in both calcium and phosphorus; and eggs in all three (the yolks especially in phosphorus and iron)—so if milk, cheese, and eggs are consumed in any considerable quantity, no further thought need be given to minerals. The adult system can instead, or in addition, help itself to a fair amount of all three if plentifully supplied with the ordinary vegetables (particularly green cabbage, cauliflower, spinach, beans, peas, young carrot-tops, and young turnip-tops). Meat, whole wheat bread, brown rice, oatmeal, and whole corn also are good phosphorus and iron foods; fish is well supplied with phosphorus; and dates, figs, prunes, raisins, ripe olives, dandelions, and watercress are among the most important additional iron sources.

Vitamins have not been identified but their indispensability has been fully established. Up to the present writing, five have become part of the standard information on the subject—and all of them are essential to bodily well-being. They are:

Vitamins A and E, known by many names—together formerly as "fat-soluble A," and now specifically respectively also as the "anti-ophthalmic" and "antirachitic" vitamins. A (and also E in most—perhaps all—cases) is abundant in milk, cream, butter, egg yolk, the glandular organs (as the liver) of animals and fish, and many vegetable foods—particularly the green parts, but also in the roots (as especially carrots and sweet-potatoes)—and in a few fruits—as tomatoes, oranges, and apples. It is also present in the fats of meats and fish. It is not found (or only slightly) in vegetable oils and not at all in refined lard. Deficiency of A checks growth, and makes the individual readily susceptible to tuberculosis and other ills. Complete lack of it commonly results in the dangerous form of eye-inflammation known as ceratomalacia. Lack of E produces rickets. (The letter-title "E" is tentative.)

Vitamins B and D, the "anti-neuritic" vitamins. These are present in nearly all fresh foods, except sugars, fats, oils, and highly milled starchy products such as white flour, white rice, and cornstarch. Tomatoes, beans (including soy-beans), cabbage, and spinach are rich with them. Potatoes and other tubers and roots (as the turnip group), lettuce, onions, and ripe peas are also good sources. Lack of them checks growth and undermines the health generally; and of B specifically results (in acute cases) in the disease beri-beri—but little thought need be given them by the average layman in this country under normal conditions, as (unlike A-E and C) the ordinary American diet nearly always provides a sufficiency—and the latter is in any event assured by any diet that supplies A-E and C.

Vitamin C, the "antiscorbutic vitamin." It is found in nearly all fresh fruits and fresh vegetables, both roots and green (including germinated seeds). It is present but not abundant in meat and milk. Particularly good sources are green cabbage and lettuce and other green leaves, citrus juices (lemon, orange, grapefruit, and others), raspberries, tomatoes, and rutabagas. Its lack causes scurvy.

There are a few foods which contain all these vitamins. Most prominent are tomatoes, fresh string-beans, green cabbage, carrots, oranges, germinated seeds, lettuce, and milk. Milk is, however, not reliable as a source of C.

The vitamins are greatly reduced in most cases (and C is commonly destroyed) by the ordinary process of canning, and by sun-drying, or drying by artificial heat at high temperature, or by long-drawn-out drying at any temperature. Quick drying at a moderate temperature (as in modern dehydration), followed by sealing and cool storage, has a great deal less effect, and a product of careful preparation will retain merit for months. A and C also lose rapidly by oxidation—as in the commercial handling of milk, in pouring from one container to another, etc.

Ordinary cooking that does not exceed the boiling point does not greatly decrease the efficiency of A, B, D, or E, but it may nullify C.

The loss is least in acid mediums. Tomatoes constitute an excellent source for all three groups, even when canned or dehydrated and cooked again for service after canning or dehydration. Citrus juices (as of oranges, lemons, and grapefruits) and their dehydrated powders also maintain a fair percentage of their properties for long periods if properly made and thereafter properly cared for.

The family dietary should provide all these vitamins. Under normal conditions it is unnecessary to add them in the form of special preparations. Such preparations, if carefully made and consumed fresh, may convey an adequate vitamin supply, but the consumer relying on them is apt to neglect the consumption of the natural sources and thus misses their other equally valuable properties. Yeast is an abundant source of vitamins B and D, just as cod liver oil is of vitamins A and E. If their services are needed, both cod liver oil and yeast are most meritorious articles, but neither is ordinarily required under normal health conditions.

Energy foods. We next consider the requirements of energy foods. These, specifically, are fats, starchy foods, and sugars (starches and sugars being grouped under the head of "carbohydrates").

The principal fats are those in meats, butter, and cheese, and a few fruits, nuts, and seeds (as olives, walnuts, peanuts, and cottonseed).

The principal carbohydrate foods are cereals—as wheat and rye in the form of bread, corn meal and starch, rice, and oatmeal; other starchy products such as potatoes, and ripe beans and peas; sugar as added to various others foods and beverages, and in the form of candy, and as contained in fruits (particularly dates, figs, prunes, and raisins) and vegetables such as sweet beets and sweet-potatoes.

Fats pass into the system as fatty acids and glycerol, part to be oxidized to supply the energy for one's daily activities, part to be stored as a reserve force, distributed throughout the tissues as human fat. Carbohydrates are generally converted into the sugar known as "glucose" before entering the tissues (see GLUCOSE and LEVULOSE), to be similarly utilized and stored.

General Dietaries. It might be possible to live on an exclusive bill of fare of pure protein, minerals, and water, if the necessary vitamins could be added, but such a diet would be neither desirable nor attractive. A decided improvement would be attained by diversification to the extent of using only foods of high protein content and good general mineral and vitamin properties—as milk, eggs, and meat—for these carry also a proportion of fats or carbohydrates or both—but even this diet (though in proper proportions it might be borne by the system) would prove too monotonous or too expensive—perhaps both—to be indefinitely continued. Again, whole-wheat bread and good, rich, raw milk would of themselves make a reasonably satisfactory diet from a theoretical standpoint—giving water, protein, fat, carbohydrates, minerals, and vitamins in fair proportions and in easily digestible form—but fortunately we need not restrict ourselves to such a tedious bill of fare!

Much more pleasing and also dietetically much preferable is the common method of obtaining the necessary food constituents from a variety of sources—from grains (in bread and "cereals," etc.) and fruits and vegetables, in addition to the milk, eggs, and meat.

We have agreed that a "mixed diet" is the best. The next point for decision is the proportions of the foods composing it.

The necessary quantity of *protein* varies with the size of the individual, his or her age, and various other conditions. It should ordinarily be more for a big man than a small one, but also a great deal more, in proportion to weight, for a growing child than for an adult. It should be more for a woman as an expectant mother and a nursing mother than under different circumstances. A daily quota of 85 grams (about three ounces) is considered a sufficient supply for a reasonably well-fleshed adult, from young to middle-aged, weighing about 150 pounds. An adult who includes a considerable proportion of fat in his or her 150 pounds needs less than 85 grams—for this amount is based on an average of ordinarily good condition. The average woman weighs less than 150 pounds, and therefore requires less than 85 grams. A large man or woman (not merely a *fat* man or woman!) may increase his or her quota in proportion to his or her excess over 150 pounds weight. An older person requires less for his size than one young or middle-aged. Children should have from 30 to 100 grams, according both to age and individual idiosyncrasies of growth. Less than these figures is frequently advocated, especially for adults, but it is not desirable and is best not essayed unless a general food scarcity renders it essential. A somewhat higher average may indeed often be found beneficial if the protein sources are well chosen, particularly if employed to diversify the large quantity of food needed to furnish a great deal of muscular energy. An active boy developing into a robust young man may be able to use 150 (or even more) grams to advantage. A moderate excess of protein beyond the requirements of body building or replacement may be utilized as energy, or may be converted into fat. A considerable excess is undesirable and may in the long run prove actively harmful, laying too great a burden on the kidneys and producing extreme putrefaction in the intestines.

Of this average 85 grams of protein for adults, about 50 to 55 can be taken to advantage in special protein foods, and may be represented by a glass of milk, six to eight ounces of fresh, lean meat or fish, or poultry, or game (as rabbit), and an egg. The same quantity of protein can be obtained by the simple consumption of nine to twelve ounces of lean beef, but diversification is vastly preferable. The remaining 35 to 30 grams will be carried in other foods—in bread, "cereals," spaghetti and similar articles, vegetables, and fruits.

It should be noted that the meat references are to "moderately lean" and "lean" meat. Fat meats furnish, weight for weight, a smaller protein equivalent and the quantity should therefore be increased. The protein content of bacon may be only half that of lean beef—its chief food value, resting largely in its fat, being as an "energy" food—necessitating either a proportionately larger consumption, or the doubling of the milk and egg allowance in order to obtain the desired protein total.

A great many variations may be made and the schedule may be manipulated in hundreds of ways for the better suiting of tastes and circumstances. If milk is plentiful and cheap, the quantity may be doubled and the egg omitted. Or four tablespoonfuls or so of cottage cheese may take the place of both the egg and the milk. If eggs are plentiful and milk scarce, an additional egg may take the place of the milk. Or both the milk and egg may be a little more than doubled and the meat omitted. Or a piece of liver may take the place of the egg; or the latter may come to the table in a custard. Skimmed milk or buttermilk may be served to healthy adults instead of whole milk.

For children, the first aim should be the now standardized "quart a day" of whole milk. This is not always possible, but it is extremely desirable in every normal case. In addition, first one egg and then (as the child grows older) two eggs should increase the total protein, and finally (in addition) half the mentioned amount of fresh meat or poultry—thus (with the protein contained in the other foods) approximating 100 grams. Milk is for children so particularly valuable a food that every effort should be made to obtain an adequate supply—fresh, if in any way possible—using goat's milk, for example, if cow's is not available. If it is not relished as a beverage by the older child, its consumption may be in puddings, or otherwise cooked or transformed. If fresh milk cannot be obtained, or its quality is poor, evaporated or dried milk will serve moderately well, if of good manufacture and consumed as soon as possible after manufacture. The protein and minerals will be there but it must be remembered that the vitamin content may have been considerably lessened, and also (in the case of dried skimmed milk) that the fat content has been eliminated. (See *Dry Milk* in the article on MILK.) There is something wrong with the social or industrial management of any community or state in this country which does not make a competent milk supply available to every family.

The main protein requirement thus provided, one may pass to the *energy foods*—the fats, starches, and sugars—the necessary quantity varying with the individual's manner of life. The greater the activity, the larger should be the supply—for the system will steal from the growth and maintenance protein-supply and use its thefts for energy purposes if not furnished with sufficient or proper energy foods. Furthermore, apart from its energy value—and also of its vitamin content (when of animal products)—some fatty food (as butter, the fat of meats, vegetable oils, etc., in or with other foods) is essential under normal conditions for its aid in the general functioning of the digestive system. And starchy foods—in addition to their energy value and their comparative cheapness as energy sources—are needed for the effective metabolization of fats!

The energy value of foods is recorded in calories (the "greater," or kilogram, calorie)—one calorie representing the amount of energy created by the oxidation of sufficient food to raise one kilo of water 1° Cent. The calorie standard is not an exact one—it has accorded apparent equality to foods that proved very dissimilar in value when taken into the human system, and it ignores the fact that our bodies produce energy by chemical combinations and cleavage as well as by oxidation—but it is the best method of ready calculation that has achieved general recognition.

Modern dietetics simplifies calorie calculations by adding together the values of all foods—those eaten chiefly for growth and replacement, as well as those consumed primarily for energy. Thus totaled, girls in their teens need from 2000 to 4000 a day; boys in their teens, from 2500 to 5000. An adult of either sex of about 150 pounds in weight and of sedentary occupation requires from 2500 to 3000; if moderately active in a physical way, from 3000 to 3500; if doing a great deal of physical labor, from 4000 to even 7000. Of all these totals, the fat and carbohydrate calories are commonly figured at from 85 to 90 per cent.

Any excess of fat and carbohydrates after satisfying the immediate heat and energy needs, is (as already noted) stored in the form of fat, which (except when excessive in amount) stands as a very real reserve store of energy when at any time the body requires more fuel than it can draw from the immediate supply of food. A person who does an unusually excessive amount of physical labor may lose several pounds in weight in a few hours. Translated, this means that the energy developed and utilized has been drawn from the body's reserve store—and necessarily so, as under such conditions of activity it could not assimilate and convert a quantity of food sufficient to furnish the energy expended.

Fats are the greatest energy producers—being followed by sugars, starches, and protein—but, in the consideration of the many tables of calories, the reader must bear always in mind the limitations of the human digestive organs. A pound of refined lard is credited with more than 4000 calories—sufficient as a day's energy-supply for a man doing heavy physical labor—but no man's digestion would permit him long to continue at that labor if he endeavored to satisfy its daily demands for energy food with a daily pound of lard! The human machinery can handle only small amounts of unmodified condensed fuels—even of such popular foods as butter and sugar—or of foods of heavy oil or sugar content—it prefers them eaten with, or mixed with, other components, or, in the case of sugars, to produce the greater part itself by conversion. Also, though, a much greater proportion of fats and sugar can be advantageously used under conditions of hard physical labor in outdoor occupations than by people less active.

Again, despite the individual daily totals compiled to show both a restrictive maximum and a necessary minimum, it is not usually necessary to set any limit in childhood or youth, or young manhood or young womanhood, on the consumption of the ordinary energy foods—"cereals," bread and butter, spaghetti, potatoes and other starchy or sweet vegetables, fruits such as fully ripe bananas, dates, figs, and prunes. The appetite is generally the best guide for this part of the diet and will commonly act as an automatic shut-off when the maximum body need has been satisfied, provided the candy consumption is kept low, and only moderate amounts of sweetened foods (as cakes and rich puddings and sweetened drinks) are given or consumed. Nor is it desirable to use much urging to increase an apparently small consumption, except under medical advice, if health, weight, activity, and other conditions are generally normal.

At and after middle age, however,—also by some adults at any age—a marked excess of weight should be accepted as a challenge to consider a reduction or change of diet. Fat men who wish to lose weight should lessen their consumption of fats, sugar (both in solids and beverages), and starchy foods such as bread and potatoes, and should permit green vegetables to bulk more largely in their diet. The over-thin man should (if his digestive system prove agreeable) increase his consumption of fats (as butter and cream) and sweet and starchy foods.

We think now of the *mineral* and *vitamin* features. These cannot be measured by the housewife but the most important sources have been enumerated on pages 209 and 210. Various foods abundant in both have been covered in the preceding paragraphs on proteins and energy foods, but it remains important to stress the statement that every household should endeavor to have fruits and vegetables on the table every day for at least one, and preferably two, meals. In addition to their minerals and vitamins and the direct nutrition they afford, their bulk is a great intestinal aid and (in the case of vegetables and citrus fruits—oranges, etc.) they also do important service in guarding against excessive acidity of the system.

Canned and dried fruits and vegetables are entitled to full respect for their energy value, protein, minerals, and bulk, but it should be a rule to have one or two fresh vegetables or fruits, or a salad, to serve as vitamin providers—frequently including green vegetables and green salad such as lettuce, and the valuable orange or tomato, in order to make sure of the supply of vitamin C. For the same reason orange juice or tomato juice should form part of the diet of the infant whose milk supply is scanty, or pasteurized, or dried—and is often beneficial even when the supply is plentiful and of the finest grade of raw milk. If local conditions of either growth or supply interpose an element of danger in the use of uncooked vegetables and salads, it is well to remember that short boiling—say from ten to twenty minutes—is better than long, slow cooking. Cabbage boiled in the ordinary household manner for twenty minutes has only about one-fifth the antiscorbutic value of raw cabbage, but it remains efficacious, whereas either canning or prolonged household cooking even at a low temperature may entirely destroy its vitamin-C properties. Also, one must take account of the loss in the cooking water—baked potatoes and potatoes boiled in their skins retain more merit than those peeled before boiling. (See additional remarks in the article on VEGETABLES.)

With modern storage and transportation, the "fresh fruit and vegetable" rule is usually possible. In the country—with the outdoors available during the entire summer and the possibilities of cellar culture in the winter (for suggestions see the article on CHICORY) it is always so without much effort, once the habit has been established—and it could be made so even in the most congested city, for if no fresh green vegetables are obtainable, an efficient substitute may be secured by germinating ordinary dried peas or various other seeds (see BEAN SPROUTS and GERMINATED SEEDS).

Sprouted seeds are not the only example of an efficacious substitute. The anxious mother who fears that her child will suffer because she cannot afford to give it orange juice every day will be glad to be told that some of the juice out of a can of tomatoes is about as good, even for a very young baby.

It is essential that the need for vitamins be borne clearly in mind by the housewife. If it is not, there exists the possibility that even a table which is generously supplied with a diversity of wholesome, nourishing, and appetizing foods of (otherwise) excellent selection may prove markedly detrimental to the family's well-being—its individuals in all probability blaming their poor health on every possible cause except the right one. White bread, white rice, canned foods and similar articles—all of these are good if consumed in well balanced proportions, and substantially supplemented with other foods retaining their vitamin properties; but this supplementary provision is vital. With the vitamin need supplied, the additions to our food supply effected by canning and other methods of food preservation are of enormous benefit to the nation; without it, their abundance and diversity become a menace. The use of canned and dried meats and fish may be passed without objection, for their merits far outweigh their deficiencies—they serve as economical and convenient conveyors of protein, and their vitamin loss is comparatively unimportant, even fresh meats and fish being minor vitamin sources under civilized conditions. The use of canned and dried milk also, for cooking and for general adult use in a mixed diet, could advantageously be extended for its protein (its vitamin-C content, being variable, is not here taken into consideration). But every housewife should see to it that fresh milk, fresh eggs, fresh vegetables and salads, and fresh fruits are not crowded out. The quantitative use of canned vegetables and fruits (with a few exceptions, as tomatoes) should, particularly, be challenged and most carefully considered.

Excepting fundamental requirements—i. e., that water, protein, minerals, vitamins, and energy food be provided in assimilable form—it will be understood that all statements concerning human diet necessarily deal in human averages. Furthermore, all percentages of food components essential or desirable are subject to variation in different climates and countries, and only a few are absolutely binding in the operation of the wonderfully adaptable human machine.

It is *not* a good idea to try to live up to an exact schedule of so many calories and so many protein grams for each meal and every day, but it *is* desirable to occasionally review your average daily bill of fare in order to see if it fulfills its requirements, and then to modify it as necessary if it does not. It is only a general average that is necessary—an occasional too much or too little of this or that will under normal conditions be safely balanced by the body's reserve system. In families, a *total* average is not always an adequate guide, for one or more members may be underfed on essentials even though the family average be good. An individual accounting is the only true guide—and one may recapitulate that the principal points to bear in mind are the water, protein, mineral, and vitamin elements, and the undesirability of excessive consumption of sweet and fatty foods.

In conclusion one may add that the importance of good cooking cannot be overestimated—incompetent preparation often means the loss of much of the value of the food eaten. The purposes of cooking are threefold—(1) to assist digestion by preparing the food for the action of the digestive juices, (2) to quicken the flow of saliva and other digestive secretions by making it pleasing to the palate and other senses, and (3) to destroy by heat any disease germs or parasites that it may contain. It will be understood that the last purpose should not be carried to the vice of a general overcooking of all food and the consequent elimination also of essential vitamin properties.

Special Dietaries. The preceding section devoted a few lines to the problems of the over-stout and the over-thin. Beyond the generalities outlined, no abnormally proportioned dietary should be essayed except under medical direction. The very stout man or woman who, without proper advice, essays a radical, or extremely severe, course of dieting in the hope of quick results, may bring upon himself or herself the penalty of permanent ill-health, and not improbably a considerable curtailment of existence. Again, what one eats is of peculiarly high importance under some special conditions—as in tuberculosis and diabetes, and after typhoid fever. The layman is seldom competent to judge either the requirements or the digestive capacity of the patient—whether it be himself or an associate or dependent. That is the province of the physician.

The vegetarian or fruitarian who includes milk, and milk products, and eggs in his diet should be able to find both health and energy—for himself and his family alike. But an *exclusive* diet of vegetables and fruits should not be permitted for a child and is not to be generally recommended for adults. Much thought and calculation must be expended to make such diets even theoretically adequate—and still their desirability remains problematical, for the answer cannot be found in the results of a few days or months—it must be sought or confirmed by a knowledge of their effects over periods of years.

FORBIDDEN FRUIT, another name for the SHADDOCK (which see).

FORCEMEAT, chopped meat mixed with herbs and condiments, used for stuffing fowls, for croquettes, etc.

FOWL, a word which was originally used in the same general sense as "bird" but which is in modern language applied only to poultry, particularly the domestic cock or hen, and, by recent usage, only in general terms even in their case, the title "chicken" being now almost universally used both in trade circles and in government reports to designate fowl of any size killed for eating.

FOX-GRAPE, a once common title, happily passing, for several native grapes, especially the wild grapes of the *Labrusca* species (the original stock of the Concord and many other famous varieties) and of the *Rotundifolia* muscadines (see general article on GRAPES and special articles on MUSCADINE and SCUPPERNONG).

FRENCH DRESSING, a title applied to many simple salad dressings. The correct formula consists of three to four parts of olive oil to one part of good vinegar, with a small quantity of fine table salt and ground pepper—two saltspoonfuls of salt and one-half saltspoonful of pepper being in correct proportion when four tablespoonfuls of olive oil are used.

A little onion juice or chopped parsley, tarragon, chives, or chervil may be added if desired.

FRIED-CAKES. See DOUGHNUTS.

FROGS' LEGS. The hind legs of several species of frogs are enjoyed to a limited extent in both Europe and the United States as a delicate food much resembling chicken. There are three main kinds in our eastern, central, and southern states—the large Bullfrogs with a maximum length of eight inches and without either side-ridges or folds on their backs; the widely distributed spotted Leopard, or meadow, frogs—next in size, with whitish under-parts and with a marked fold on each side of the back; and the small Pickerels, with orange-colored under-parts and with large, more regular spots between the back folds. Of western species, the best for table purposes are the Common, or Western, Frog (*Rana pretiosa*), and the "Western bullfrog" (*R. aurora* and *draytoni*), both with a maximum of about four inches.

The large frogs are the more convenient both for general use and for market purposes; the smaller are as a rule more delicate in flavor.

Frog farming has never succeeded in establishing itself here as an industry, but there is a steadily increasing catch of the wild creatures, particularly in the Mississippi River states—it probably exceeds an annual total of two millions.

FROST-FISH. See TOMCOD. The title is also applied in northern New York to the Menominee whitefish.

FRUIT—Its Food Value, Etc. It is not so many years ago that the arrival of the "strawberry season" constituted as real and distinct a mark on the calendar as the closing of school and the beginning of the summer holidays. The season was short—and for that reason perhaps the berries seemed doubly delicious! Then, later on, the Raspberry reached the markets and the hucksters heralded its arrival through the streets. And so the spring and summer divided their honors among various fruits, sometimes singly and again in groups.

But now, modern methods of refrigeration and transportation have broken down all the bars! We may enjoy most fruits the year round—the prices vary, but there is seldom any "closed season." And many kinds formerly rare are now plentiful. The best example of this is the banana—a few years ago a curiosity to the inhabitants of inland towns, but to-day found in every hamlet throughout the country. The sub-tropical and tropical crops of California, Florida, Cuba, and elsewhere are supplemented during the winter months with fancy melons, peaches, and plums, from various parts of the world—including southern Europe, South America, and South Africa. And early in the spring, long before they are ripe in the North, various southern points are shipping carloads of berries up through the states. Much has been done for American health, and thus indirectly for American civilization, by the cheapening and popularizing of fruits during the past forty years.

The composition of a majority of ripe, fresh fruits includes about 80% water, a fair percentage of carbohydrates—principally sugar and crude fibre, a small percentage of protein and mineral salts, and valuable vitamin properties—vitamins B and C, especially the latter. The sugar percentage is lowest in berries (as blackberries and strawberries) and highest in bananas, dates, figs, sweet grapes, loquats, American persimmons, and sweet plums (especially those dried as prunes). In between are apples, cherries, medlars, pears, Japanese persimmons, pomegranates, sapodillas, and haws.

It is particularly their vitamins and their minerals—and their characteristic combination of water, sugar, and crude fibre—rather than their nutritive components which make most fruits so desirable an addition to the diet (see the article on Food Values). In numerous ways they greatly assist digestion and bodily functioning in general, and thus increase and supplement the value obtainable from the "main" foods.

The quantity that may be eaten raw depends upon individual circumstances, but a moderate amount of sound fruit in a properly ripe condition will generally be found very advantageous. The correct degree of maturity is important, for unripe fruit may cause stomach irritation by an excessive generation of acid, and over-ripe sweet fruit may set up abnormal fermentation. Cooked fruits can be used and enjoyed with equal benefit, excepting on the score of vitamins, and with greater freedom—both in quantity and in range of maturity.

Dried fruits, such as dates, prunes, figs, raisins, and apples, should be consumed more freely than at present. Their convenience and economy (from the minimized loss by spoilage or wasting) add to the recommendation of their dietetic value. With the exception of vitamins, they contain all the nutritive qualities of the fresh fruit.

A course to be avoided, though, (except under medical advice) is the general tendency to employ fruit to tempt the appetite of some member of the family who does not feel entirely well and lacks zest for his or her meals. This is decidedly inadvisable, for many forms of indisposition are accentuated by its consumption.

Nearly all fruits are best held at a temperature of about 40° Fahr. (the temperature of the ordinary refrigerator if well iced and in good condition) and this temperature is essential to avoid loss in fancy fruits such as hothouse grapes, fine peaches, and green figs. The Banana (which see) is an exception, as also are fruits which require ripening after receipt (and therefore need a higher temperature). Anything below 40° Fahr., any approach to freezing, is dangerous to the best qualities of most kinds..

Tough or thick-skinned fruits, such as apples, pears, and oranges, may be kept for a comparatively long time without cold storage or refrigerator facilities if the conditions are favorable—if they have not been bruised, so as to let the mold get through the skin; if the cellar or other storage place is dry, cool, and well ventilated; and if imperfect fruits are promptly removed and others are occasionally wiped off to remove mold spores and sweat. All these precautions are, though, insufficient for fruits with delicate skins, and the last is, of course, impracticable in the case of berries and other small fruits—they should therefore be promptly consumed while still fresh or with equal promptness be preserved by canning or made into jams, sirups, etc.

At higher temperatures, there are new dividing lines in susceptibility. Temperate-climate fruits, as apples and pears, will under ordinarily good conditions keep fairly well for a limited period in a temperature not exceeding 60° to 65° Fahr., but when the thermometer goes higher all stock except that for immediate use should be removed to cooler storage.

All fruits should be washed before eating. As, however, most berries require very careful handling to wash them without spoiling their appearance or flavor, the best advice is to exercise care in purchasing—avoiding those which are too soft or which show sand—so that only a minimum of washing shall be necessary. Only fresh, clean, fine berries should be eaten raw—others are better cooked or discarded depending on their condition and general food circumstances.

See also the special articles on individual fruits.

FRUIT BUTTERS, preserves of fruits, made without retaining any of their form, less sweet than jam, generally spiced, and of a consistence somewhat resembling butter. Apple Butter (which see) is the best-known type.

FRUIT EXTRACTS, Essences, Flavors. See the article on Flavoring Extracts.

FRUIT JUICES (Commercial), essentially the expressed juices of ripe fruits, sterilized before fermentation has commenced, and carefully bottled. The best known kinds are Grape, Lime, and unfermented Cider (apple juice), treated separately under their own heads. Among others of importance are loganberry and pineapple. If the fruits are sound and the process of manufacture is carefully controlled, no preservative of any kind is needed. The addition of a small proportion of sugar is permissible and also carbon dioxide for carbonated beverages, but if preservatives or coloring matter are added, the label should disclose the fact. If a considerable proportion of sugar is used, the product is better classed as Fruit Sirup (which see). The difficulties of flavor and color are much more easily avoided or overcome when a sirup instead of a juice is made, though at the expense of some of the delicacy of the flavor.

Many more fruit juices would be marketed if it were not for the difficulty—in many cases the impossibility—of retaining the natural flavor (and also, largely, the natural color) during and after sterilization—strawberry juice, for example, quickly takes on a cooked taste and a brownish appearance, and numerons others deteriorate in a diversity of manners.

Most noteworthy among those not generally put up commercially, but which possess flavor of agreeably strong character and which are retentive of both flavor and color, are blackberry and currant. These are suitable for home preparation and offer commercial possibilities.

All fruit juices should be held in a cool, dark place, and once a bottle is opened its contents should be consumed as soon as possible, or the remainder may be spoiled by fermentation.

FRUIT SIRUP. As generally understood in the trade, fruit sirups are divided into two classes, those bottled to be retailed for home use in making summer drinks, and those put up in various kinds of receptacles for sale to soda fountains, etc. The best types are pure fruit juices concentrated and heavily sweetened, with, in some kinds (as apple and grape sirups) the excess of acid precipitated by means of carbonate of lime, and then removed by filtration.

The home use of fruit sirups is worth encouraging. They form an agreeable variation from the time-honored lemonade made from the fresh-cut fruit, and similar beverages; and are much less trouble—you merely pour a little sirup in the tumbler and fill with cold water, either plain or carbonated. There is no fuss with squeezers, or sugar bowl, and the result is deliciously refreshing. They are more economical than bottled fruit juices as there is no necessity to empty the bottle in order to forestall loss by fermentation.

The visitor to Paris always notes with interest the great variety of fruit *sirops* sold at all refreshment stands and at the sirup booths along the boulevards. Their popularity is due to the fact that, as a general thing, their purity and quality have been carefully guarded. They are drunk mixed either with plain or effervescent water. Some people who wish the sweetness modified, procure a delightful drink by adding wine—or substituting it for the water. The same result can be effected almost equally well by the addition to the water of any desired proportion of high-grade vinegar.

The sirups most in favor are currant, raspberry, lemon, cherry, pomegranate (grenadine), and almond (orgeat).

Skill is also displayed in the mingling of flavors. *Sirop de groseilles,* currant sirup, for example, generally consists of four parts of red currant and one part of bitter cherries. *Sirop de groseilles framboisées,* is four parts of currant and one part each of raspberries and bitter cherries.

Other sirups popular in this country are strawberry, pineapple, peach, and apricot.

FRUIT-SUGAR. See the article on LEVULOSE.

FRUIT VINEGARS, pleasing, mildly acidulous beverages made of fruit juices, (generally diluted with water), sugar (or sirup), and yeast, and permitted to undergo a double fermentation—first an alcoholic, then an acetous, as for ordinary VINEGAR (which see). Natural fermentation, i. e., the action of wild yeast, is sometimes relied upon instead of adding commercial yeast. Very delicate and volatile-flavored fruits, as raspberries, are best made by the quicker process of adding ordinary, well refined, ready-made vinegar (see RASPBERRY VINEGAR).

FRUMENTY, a dish made by boiling whole hulled wheat in water until soft, then draining, adding milk, sweetening, and flavoring (with nutmeg, etc.). When currants (or raisins) and eggs are added, the result is ''Somersetshire frumenty.'' Frumenty is seldom seen nowadays, but it was formerly very popular. It is worth reviving because of the dietetic advantage of the whole grain.

FUNGUS, a botanical term embracing all vegetation which is unable to draw its nourishment from the chemical components of the earth and the air, as do all ''ordinary'' plants, and must therefore live on organic substances—animal or vegetable matter, alive or decaying—resembling in that respect members of the animal kingdom. There are many genera and a great number of species, differing widely in size, appearance, and characteristics—some very valuable, others most pernicious. The higher fungi include MUSHROOMS, PUFFBALLS, and TRUFFLES. The smallest, commonly known as MICRO-ORGANISMS, include BACTERIA, YEASTS, and MOLDS. All of these are treated in their alphabetical positions.

GALANGAL, the aromatic rootstock of several plants of the ginger family, imported chiefly from China. It is used, though less than formerly, as a spice and in parts of Europe as a medicine. The title ''edible galangal'' is also given to the CHUFA (which see).

GALANTINE, fowl, game, fish, or other meat, boned, stuffed and roasted—or boiled or braised—then pressed and cut in slices or put in molds, covered with aspic jelly and decorated with truffles.

''Goose liver galantine'' and ''sweetbread galantine'' are also set in bases of well seasoned, fine-chopped pork mixture in place of aspic jelly.

GAME, any wild bird or other animal used as food, such as grouse and rabbits. The title is also applied in a limited sense to animals generally existing in a wild state even when partly or wholly domesticated.

The state and federal game laws in force are so numerous and so varying in character and detail, that any attempt to condense or quote from them would probably prove misleading—especially as they are liable to change at any time. A recent government publication consumed eighty pages to cover the subject. Copies of the current issue of this, and other instructive books and pamphlets, can be obtained from the Division of Publications, Department of Agriculture, Washington, D. C.

GAMMON, a term variously employed for a leg of salt pork, a smoked ham, and the lower part of a side of pork (including the ham).

GARBANZO. See CHICK-PEA.

GARDEN-BALM, or Balm-mint, or Lemon-balm, an aromatic herb with, commonly, a marked lemon odor. It is used as a general culinary flavoring and in salads, and its oil in perfumery manufacture.

GARFISH, or Needlefish, a genus of elongated, slender, compressed, spear-mouthed fishes, represented in both temperate and tropical seas, which may be likened to a cross between a mackerel and an eel. Their flesh is wholesome and pleasing, but is avoided by many people because of the distrust aroused by the green tint of their bones.

GARLIC, a vegetable similar to a small onion but with the bulb—white-skinned or rose-tinged—divided into ten or twelve sections known as "cloves." Twenty bulbs of fair average size weigh about one pound. At certain seasons garlic abounds in many pastures and imparts a very rank flavor to the milk and butter of cows which feed on it. Its main uses are the flavoring of soups, sauces, salads, and pickles. In southern Europe it is a common and important ingredient in many food combinations. Its flavor is stronger and more acrid when grown in cold climates than when cultivated in warm latitudes.

The garlic is famous in history and has been popular in various parts of the world from the earliest recorded days. It was consumed by the laborers who built the Pyramids and by the legions of Ancient Rome.

Garlic—the bulbs tied to a bundle of straw

GARNISH, or Garniture, terms employed in general culinary parlance to include almost anything dainty in appearance or composition served with meat and fish dishes, etc. It may be a simple border of parsley or sliced beets; or a service of apple sauce or currant jelly; or any one of a hundred mixtures, including mushrooms, truffles, crayfish tails, shrimps, cockscombs, and vegetables cut into shapes, served either with or without sauce.

GARUM, a heavily salted and highly seasoned sauce or relish made from fish in a state of fermentation, the flesh itself or the blood and gills only being used.

GELATIN, obtained from various animal substances. The bulk of the commercial output is from the bones and the softer parts of the hides, etc., of mature and old cattle. Better grades are from selected calf's stock—the cheek and neck pieces, membranes, skin, fibres, and tissues, and the organic parts of the bones.

It is difficult to test gelatin. Some manufacturers suggest pouring boiling water over soaked gelatin, attaching the highest importance to the absence of odor and color, but this may prove deceptive as the very poorest grade can be made odorless and colorless by bleaching with sulphuric acid or peroxide of hydrogen. Many states forbid such bleaching.

Gelatin is a protein, but it does not come within the life-sustaining class because of its lack of certain essential amino-acids (see FOOD VALUES). It is, nevertheless, a valuable article of food, used in considerable quantities in hospitals and recommended by physicians as an article of diet for its service as a complement of other proteins, for its property of making various foods more palatable or more easily digestible, and for its value in neutralizing excess of acid.

Its uses in the ordinary household are many and varied—from adding body to soups to making candies, ice creams, jellies, and other desserts.

Calves' feet yield a very high percentage of gelatin, and "calves' foot jelly" has won fame, but its cost to the consumer is much greater than the jelly that can be so easily made of ordinary good commercial gelatin, and its dietetic value is not superior in any measurable degree.

See also Isinglass (fish gelatin) and Agar-agar (vegetable gelatin).

GENIPAP, the greenish-white, subacid, purple-juiced fruit of a tropical-American tree (*Genipa americana*). It is the size of a medium orange and is popular as a preserve and in marmalade style.

GERMINATED SEEDS. The article on Bean Sprouts (which see) suggests the germinating of seeds as a readily available method by which the housewife can remedy any dietetic deficiency of Vitamin C (see Food Values) caused by the scarcity or high cost of green vegetables and fresh fruits. Mung-beans, whole ripe (*not* split) peas, wheat, and rye are well suited for the purpose. The process of germinating is largely identical with the first steps of the production of bean sprouts. The seeds are soaked in water for twenty-four hours and then transferred to a can or other receptacle with a perforated bottom (so placed that they can drain) and kept moist (by sprinkling with water two or three times a day) until they commence to sprout—from one to three days according to the temperature, etc. The can is preferably covered lightly with a piece of clean, loose sacking or something similar—not tightly with a lid. If more convenient, the seeds may (after the preliminary soaking) be spread out on trays or dishes—either spread thin or in layers of an inch or more in depth—instead of being sprouted in a can. They are ready for use as soon as the sprouts are a quarter of an inch or so in length.

Preparation for the table includes thorough washing and a brief cooking (sprouts and all). If, as ordinarily, boiling in slightly salted water is the method of cooking, it should not exceed 20 minutes or the vitamin property may be lost. The water should be boiling when the seeds are put in.

Ripe peas thus germinated and boiled have an agreeable chestnut flavor and texture. Wheat and rye are very mild to the palate and pleasantly "chewy"—their service may be with butter, or gravy, or milk and sugar, or tomato sauce, etc. Mung-beans are the tenderest of all, and particularly delicate eating—especially if served with a little butter.

It will be noted that the choice of seeds is wider than for the raising of bean sprouts because the process is shorter and the root growth is consequently unimportant. Kidney-beans are, however, again barred as undesirable. Sprouted corn requires such long cooking that its Vitamin C value may be impaired. Oats, barley, and whole (seed) rice are not suitable as generally marketed because of their adhering hulls—and the ordinary brown, or edible milled "whole" rice, will not germinate. Soy-beans do not sprout readily enough to be recommended to the housewife.

In addition to Vitamin C, these germinated seeds also carry the A and B groups, particularly the latter.

GHEE, a clarified butter used by the natives of India, prepared either from cow's or buffalo butter. A common method of preparation is to boil the butter until all the water has evaporated (skimming meanwhile), then straining, seasoning with salt or betel-vine leaf, and pouring into vessels for sealing and preservation.

Ghee enters largely into the diet of India, especially into that of the Brahmans. It is also in high repute medicinally, its virtues being considered to increase with age. At ten years or more it is of reddish color and very marked odor. Some that has been preserved for much longer periods is dry and hard and earthy looking, and almost without odor.

GHERKINS. Several varieties of the common cucumber, generally those with prickly skins, are specially cultivated for gathering while still small to pickle as "gherkins."

The original gherkin (or West-Indian gherkin, or Jamaica cucumber, or burr cucumber) is a distinct species native to tropical America and locally used both fresh-boiled and pickled. It is light green, from one to three inches in length, about half as thick as long, and of the general character of the common cucumber, but much more spiny.

GIBLETS, a title which formerly signified only the entrails of poultry, but is now applied to parts and trimmings such as the heart, liver, gizzard, neck, and ends of the wings and legs.

GINEP, or Spanish Lime, a fruit highly prized in the West Indies, and cultivated in this country in southern Florida and southern California. It suggests a plum in appearance, is green or yellow in skin, about an inch in length, and contains a rather scant but pleasing, tart, grape-flavored pulp adhering to large seeds. Both the pulp and seeds are edible, the latter being sometimes roasted and eaten like chestnuts.

GINGER, the rootstock, or rhizome, of a perennial, reed-like plant with annual leafy stems, three to four feet high, which grows freely in moist places in all tropical climates. The rhizomes are gathered when the stalks wither. For "coated," or "black," ginger, with its brown wrinkled surface, they are then scalded or simply washed and set to dry in the sun. This is the method usually employed for the older, poorer roots. For "uncoated," or "white," ginger, the washing is followed by scraping. The natural color of "white" scraped ginger is a pale buff—it is often whitened by bleaching or liming, but generally at the expense of some of its real value.

White ginger of the first grade should be large, light-buff throughout, soft and even in cutting, and of strong characteristic flavor. The present supply comes chiefly from Jamaica, the Malabar Coast of India, and the East Indies. "Cochin" and "Calicut" are titles borrowed from the two Indian cities of those names.

African ginger is dark and coarse in texture, but has an excellent, strong flavor. It is largely used in the manufacture of ginger ale and extracts. "Borneo" ginger is merely a former trade term for some white ginger—none is exported from Borneo.

Japan ginger, usually bleached or limed before shipment, is of fine appearance, large, and smooth, but is inferior in strength.

"Green ginger" is that which has not been scalded, scraped, or dried. It is used by makers of preserves.

Preserved, or conserved, or Canton, ginger consists of young green roots boiled and cured in sirup and put up in pots and jars. The principal consumption is of the imported Chinese product, but there is an increasing sale of West-Indian.

Crystallized ginger is also made from the young roots. The best grades, selected for uniform size and appearance, are called "stem ginger."

Leaf ginger is ginger that has been shaved into thin flakes.

Other well known articles which have the root, or extracts from it, as a foundation are ginger ale, ginger beer, Jamaica ginger (an alcoholic extract of the root), and ginger tea.

Medicinally, ginger—as Jamaica ginger—is a grateful stimulant and carminative, being much used for dyspepsia and colic. It is also frequently employed to disguise the taste of nauseous medicines. Ginger tea is an old-fashioned remedy for colds.

See also the general article on SPICES.

GINGER ALE, as generally made, is a blend of ginger, red pepper (capsicum), lemon, and other flavors (such as sarsaparilla), with caramel for coloring, incorporated in distilled water, and (finally) carbonated to give the desired effervescence. It is greatly improved by adding a sprig or two of bruised mint to the glass shortly before drinking.

GINGER BEER, a water-colored, effervescent beverage made of ginger, sugar, and water, fermented by yeast. It is popular in England but is not much consumed here.

GINGKO-NUT, the thin-shelled seed of the gingko, or maiden-hair, tree — tall, slender, and graceful—popular as a park and street tree. It is native to northern China and Japan. The whole fruit resembles an American persimmon in general appearance, and is about an inch in diameter. The ripe pulp is offensive in odor, but the greenish nut-kernels are agreeable to the palate--sweet, with a mildly, resinous flavor. They are generally eaten roasted.

GLACÉ FRUIT, another title for CANDIED FRUIT (which see).

GLIADIN. See matter following the title of GLUTEN.

GLUCOSE, or Dextroglucose, or Dextrose, or Grape-sugar. True glucose—a very important food factor—is a monosaccharid—a ''simple,'' or ''single,'' sugar widely distributed in the vegetable and animal kingdoms. It is found in large proportions in fruits (particularly in grapes), and in some vegetables (as sweet corn and onions), and, in blood-solution, is continuously being used and replaced in the activity of all animals—including ourselves. The sweet, yellowish-white, granular deposit on raisins is an interesting example of true natural glucose.

From the oxidation of glucose in our tissues we derive a full half—often more—of the energy displayed in our daily lives. Our bodies may obtain it by direct consumption—as in grapes, molasses, and corn sirup—but the chief supply is secured by the conversion of carbohydrates—particularly those of starchy foods—these being changed into dextrin and maltose by the saliva and pancreatic juices, etc., and then into glucose in the intestines. Under normal conditions, the glucose thus consumed or produced passes unchanged into our body tissues—there to be split up and oxidized in the production of energy, any surplus being temporarily converted into glycogen and as such stored in the liver and elsewhere. If the surplus is considerable, it is converted into fat.

''Commercial glucose'' is poorly named, its glucose content being less than that of molasses. It is better described as a sirup of its starch source. As the United

States source is almost exclusively Indian corn, or maize, it is treated in this work under the head of Corn-sirup.

"Commercial dextrose" ("dextrose" being, as noted in the caption, an alternative for "glucose") has a better, and in the highest grades, an excellent claim to its title, but (in the United States) both its origin and character are more clearly signified by the term Corn-sugar, and it is therefore so listed.

Glucose is closely allied to, and frequently associated with, Levulose (which see). In combination they constitute Invert-sugar.

GLUTEN, the principal protein component of wheat and other grains, is composed of vegetable fibrin and a small quantity of gliadin. It is greyish and (while fresh and moist) extensible, like india-rubber. It may be separated from wheat or rye flour, etc., by making a paste and washing in successive waters until all starchy matter is removed. See also references in the articles on Flour and Wheat.

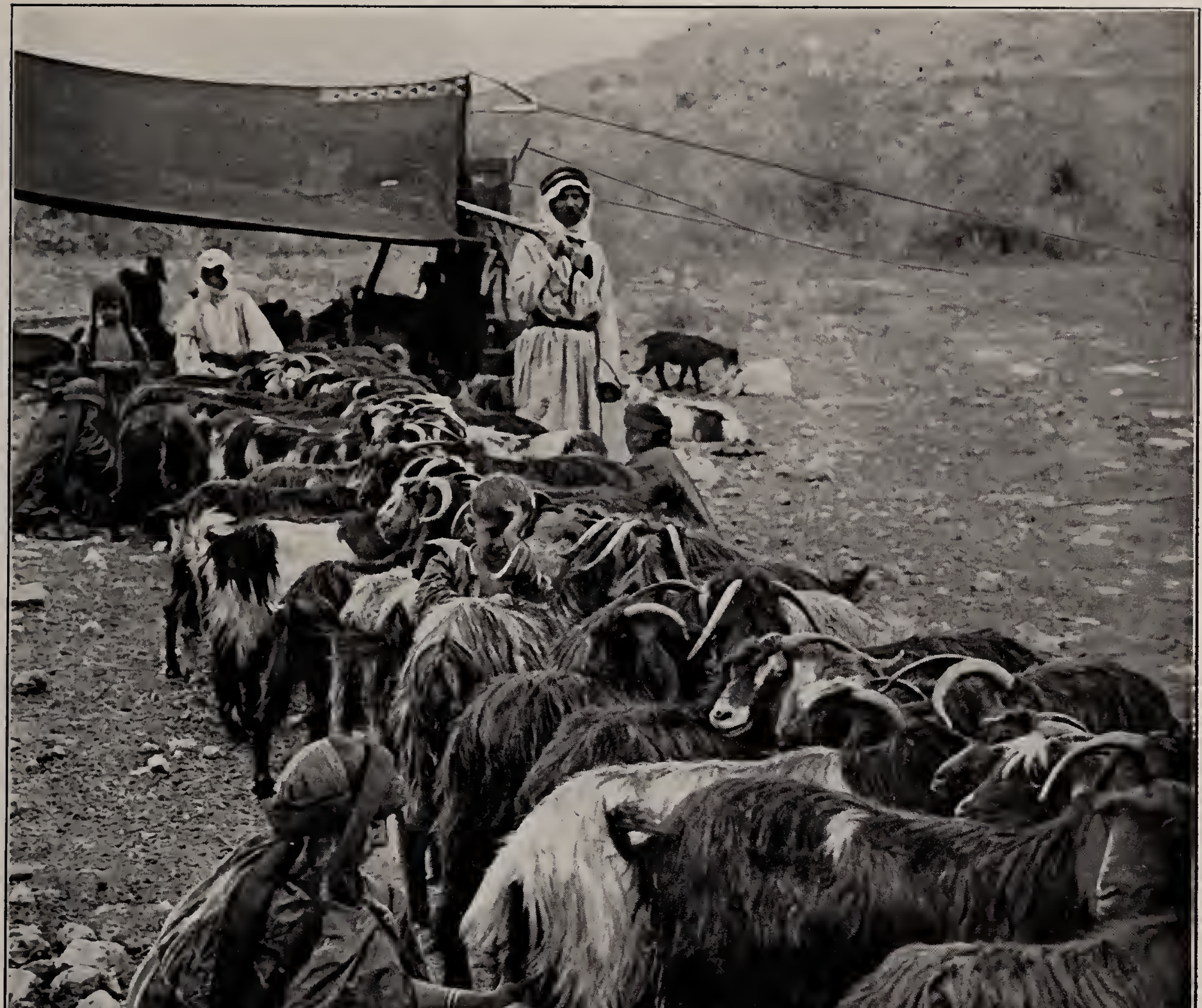
GOAT-MEAT. The popular prejudice against goat's flesh has lessened in parts of the country served with a steady supply of good quality. It has also been weakened by government insistence on the meat being truly labeled. In former days, only poor grades—often of old and nearly aways of over-lean animals—were sold as goat-meat, the flesh of young, well-fed animals being purchased and enjoyed as "lamb" or "mutton."

The best goat-meat is that of the Angora—a handsome white creature highly valued for its long fleece, or mohair—which has a wide range of uses, from men's summer suits to automobile tops and false human hair! The flesh of the young wether (the castrated male) and young doe is decidedly palatable, its flavor varying with the feeding of the animal. If the herd has fed almost exclusively on brush and weeds (a favorite diet) its meat will have a gamy flavor, and is locally known as "Angora venison." If it has been pastured upon grass in addition to brush, and fattened with corn, etc., the flavor is so similar to lamb or mutton—according to the age of the animal—that only an expert can discern the difference. Goat-meat generally carries however much less fat than ordinary lamb or mutton.

Texas owns by far the largest goat herds but the industry is well established also in the states of New Mexico, Arizona, Oregon, Arkansas, California, Missouri, Mississippi, Georgia, and Alabama. In the southern states it is steadily increasing in importance. Our total goat population is estimated at about 4,000,000.

GOAT'S MILK. Very little goat's milk is consumed in the United States, yet it would prove a valuable addition to the food supply in regions where cow's milk is not commercially distributed or is not generally obtainable otherwise under satisfactory conditions. The possession of one or two does is possible to a great many thousands of families who could not harbor a cow, and would many times repay the small expense of their up-keep by their valuable contribution of the milk so desirable in the diet of both children and adults. Goats are easily cared for and economical in feeding, and if of good breeds give a considerable quantity of excellent milk —from two to three quarts, or even more, a day—for a period of from seven to ten months without freshening.

The milk is almost pure white, and agreeable in flavor. It is entirely devoid of any undesirable taint if the doe has been milked in clean surroundings and the milk



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Milking the goat herd, Palestine

itself has been kept from contaminating odors. It should, of course, be cared for just as carefully as cow's milk.

Its composition is very similar to that of cow's milk. The water, fat, and sugar percentages are about the same; the protein is higher (see FOOD VALUES). Some authorities rate it as especially valuable for infants and invalids because of its greater protein content, the smaller fat globules, and the somewhat softer curd it forms in the stomach.

It makes good cheese, especially of the Neufchatel type, producing a smoother, closer grain than cow's milk. It also makes good, though very white, butter. It is not, however, suitable for the latter purpose under ordinary household conditions, a separator being necessary for the full abstraction of the fat—the cream does not rise readily as on cow's milk.

Neither the Angora goat of the preceding article nor the common American goat is a good milk producer, but excellent results can be obtained by crossing their does with pedigreed bucks.

Among the best milk breeds are the Saanen and the Toggenburg, both of Switzerland. It is the goat of Switzerland that has been eulogized as the Swiss peasant's cow and the Swiss baby's foster-mother! In some parts of Europe, the does are driven through the streets twice daily to be milked at the customer's door. Fresher milk than that no family could demand!

GOOBER, or Goober Pea, a title sometimes applied, especially in the South, to the PEANUT (which see). It is better restricted to an allied species which lacks a true stem and bears only one seed in a pod. Since its introduction the goober has run wild in some parts of the Gulf States.

African and Toulouse geese

GOOSE, a bird which has been raised as a pet or for the table as far back as history reaches and is to-day known and enjoyed for its flesh in every part of the world. It is, perhaps, the most popular in Germany, where it is eaten in a great many different forms—fresh cooked, smoked, and salted. Especially famous are "smoked Pomeranian goose-breast" and "Pökelgans"—the latter being goose-meat salted, stewed, and preserved in fat. By "goose" and "geese" one means of course both male and female birds—ganders and geese—for as a food-bird the gander long ago saw his title submerged by that of his mate!

Goose-fat is also highly regarded by many races. It is largely eaten in Germany in place of butter—particularly by Hebrews, as its use on bread, for example, is permissible with meat, whereas it is a violation of the Talmudian law to eat butter and meat together. It is also valued there, and elsewhere, for many culinary operations.

Some people avoid goose-meat, fearing that it is too greasy to be easy of digestion. This prejudice finds its chief basis in poor cookery. The flesh is acceptable to most stomachs if the surplus abdominal fat is removed before cooking, and if, during cooking, care is taken to skim off, or otherwise withdraw, the grease which is exuded.

The objection to the over-large size of the bird for the average family is one less easily met under the American custom of retailing only whole poultry-birds.

In this country the most popular varieties are the White Embden and the Grey Toulouse.

The Embden is distinguished by its white plumage and blue eyes, and its orange bill, shanks, and toes. It has a large, deep, square body with a round, full breast. The "standard weights" are twenty and eighteen pounds for the adult gander and goose, and eighteen and sixteen pounds respectively for the young birds. It often averages fifteen pounds in market weight. It is particularly well liked by consumers because of its white pinfeathers, and by growers because it puts on flesh rapidly and matures early.

The Toulouse is a larger bird—the biggest of standard breeds—the adult gander reaching twenty-six pounds. Its plumage shades from the dark grey of its back to the white-edged light grey of its breast, and the white of its abdomen. Its body is of only medium length, but broad and very deep, nearly touching the ground. It is often called the "Christmas goose" because it is ready for the market at about the time the holidays begin. It is named after Toulouse, France, where it is bred in large numbers.

White Chinese goose and gander

The other standard, fully domesticated breeds are the Grey African, the brown and white Chinese, and the Colored Egyptian (or Nile).

The African is about the same size as the Embden, young birds averaging a little lighter. It is distinguished by a large head with a black knob in front and a heavy dewlap under the throat. The knob is seen only in this and the Chinese varieties. Its legs are set so far back that it carries itself almost erect. The neck, breast, and under-parts are of varying shades of light grey, and the back, wings, and tail are dark grey. The African is valuable for market purposes because of its rapid growth, making eight to ten pounds in about ten weeks.

The Chinese geese are smaller. They are not favored by specialized producers, but are an excellent type for the farmer who devotes only a portion of his time to his poultry yard, as they are hardy, easily fattened, and good layers. The Brown has greyish-brown plumage, lighter on the underside, with a brown head, black or dark-brown knob, and black bill. The plumage of the White is pure white on all parts, with orange knob, bill, shanks, toes, and web.

The Colored Egyptian, or Nile, goose is the most beautiful of its race. As, however, it is bred solely for ornament, it is not entitled to lengthy consideration among its more useful cousins which offer up their succulent goodness to the appetites surrounding the dinner table. Mixed grey and black predominate in its upper plumage, the breast shading to chestnut, the wings relieved by white epaulettes, and the tail-feathers of glossy black. The under-body is light buff or yellow with black pencilings.

Geese under favorable conditions will live to a great age, but for table purposes one year is quite old enough! The age can be tested by the upper bill—if it will bend or curve in the middle, the bird is young. The firmer it is, the older you may reckon the bird.

Young geese—variously known as "green geese" and "goslings"—are in season from July to November.

See also Foie Gras, made from goose livers.

Wild Geese. The best known varieties of wild geese are the Canada and Brant.

The Canada is so much the most abundant that it officially carries the title of "wild goose" without respect to others which belong equally within the classification. It is also the largest, weighing from eight pounds upwards. The head and neck are black, relieved by a white throat-patch, the back is of grey-brown, and the under-parts vary from grey to white.

The Brant is a much smaller bird.

"Mongrel" Geese. The Wild (Canada) goose is bred to a limited extent in captivity and "mongrel geese" are produced by crossing the gander with domesticated geese. They are generally poor layers and often useless for breeding, but they are highly considered as market birds.

GOOSEBERRY (see color-page of Berries opposite 42), a juicy bush-fruit which has been brought to perfection in England, where it is consumed in enormous quantities—out of hand, and as jam, and fresh-cooked. It is produced there in a variety

Gooseberries

of colors ("white," yellow, red, etc.) and often reaches a full inch in diameter and an inch and a half in length.

The gooseberry is not popular here, largely because our native varieties are smaller, less juicy, and less flavory. The green berries are fairly well liked in pies—they also make good sauce because of their peculiar tartness—but the ripe fruit is infrequently offered. Many attempts have been made to grow the big English gooseberries but have met with no commercial success. The chief obstacle is the susceptibility of the bushes to gooseberry-mildew.

Green gooseberries are very easily preserved. The best method is to cook them until the skins burst and then put them up in fruit jars, no sugar being used until shortly before serving. They can also be kept for a considerable length of time without cooking if (after a careful sorting out of bruised or otherwise damaged fruits) they are filled into wide-mouthed bottles or jars, covered with water, corked well or otherwise covered, and stored in a cool cellar.

GOOSEFISH, a very voracious, excessively ugly fish, with a huge head, common on both sides of the Atlantic. It averages three feet in length, big specimens reaching four feet or longer—the edible meat constituting, however, only about one-third of its gross weight. In this country it is generally neglected as a food source, but it has become popular in Europe, finding the highest favor in Germany. Its steaks are exceptionally good eating—whitish, fine grained, firm, and boneless.

GOOSEFOOT, the general title (from the shape of their leaves) of a number of related plants occasionally grown for ornament, or for food. The most important of the group is QUINOA (which see). Among others are "strawberry blite," "Good King Henry," and "anserine" (*Chenopodium amaranticolor*), grown especially as greens. The purplish tint of the young anserine shoots makes them an attractive dish.

GOULASH, or Khulash, a kind of meat stew which originated in Hungary and is now popular here, both as a restaurant dish and in canned form for home use. It consists of beef or veal, potatoes, onions, paprika sauce, etc.

GOURD, a title frequently applied to all fruits of the *Cucurbitaceæ*—thus including pumpkins, squashes, and cucumbers—but which by general American usage is restricted to hardshelled fruits grown for ornament or for use as water dippers, bowls, and similar articles.

GRAIN. (1) Any small, hard seed, such as a grain of wheat, and hence taken to express the whole class of edible seeds. (2) Any small particle, as a grain of sand or a grain of sugar. (3) A measure of weight, the smallest used—one pound avoirdupois equals 7000 grains.

GRAM, the weight unit of the metric system. One ounce avoirdupois equals 28.35 grams.

GRANADILLA (*Passiflora quadrangularis*), the fruit of a strong, rapid-growing climbing vine of the passion-flower genus, native to tropical America. It is large—to eight inches in length, egg-shaped, and brownish-yellow, with gelatinous, subacid pulp enclosing a number of small, flat seeds. The green fruit is boiled as a vegetable. The ripe pulp is eaten raw, with or without the addition of sugar, converted into a fruit beverage, and made into jelly and marmalade.

The Sweet Calabash, also known locally as "granadilla," is a fruit (also tropical) of a related species (*P. maliformis*)—smooth, yellowish, and round, with an average diameter of about two inches, and sweet, pleasing pulp.

Among others of the *Passiflora* to bear the title "granadilla" is the fruit of a sub-tropical species, better known as PASSION-FRUIT (which see).

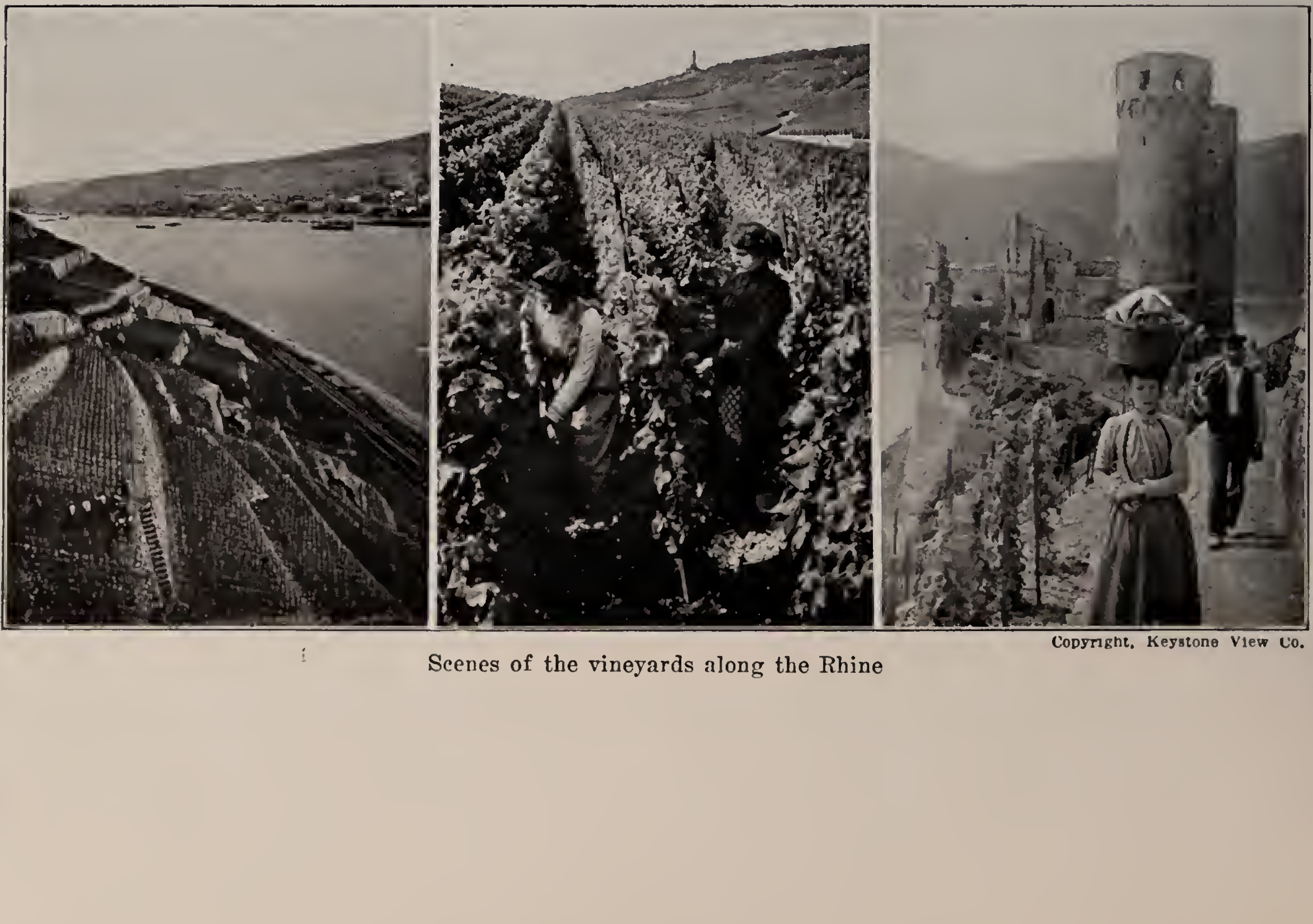
GRAPE. The quantity of grapes now consumed annually for food is enormous, yet one need not be very old to remember when a bunch was a rarity in the city save upon the tables of the rich.

To furnish this great present supply requires vine cultivation on an impressive scale. California boasts nearly two hundred million bearing vines, and additional thousands of acres are thus utilized in many other states, especially in western New York, New Jersey, Ohio, Missouri, Michigan, and Wisconsin. The annual yield of fruit exceeds three billion pounds!

The juice and flesh of the grape contain from 12% to 26% grape-sugar, 1% to 3% nitrogenous substances, some potassium and other salts, and some tartaric, malic, and citric acids; the seeds contain tannin, starchy matters, and fat; and the skins, tannin, tartar, and coloring matter. It is the combination of the volatile substances during fermentation which produces the bouquet of wines.

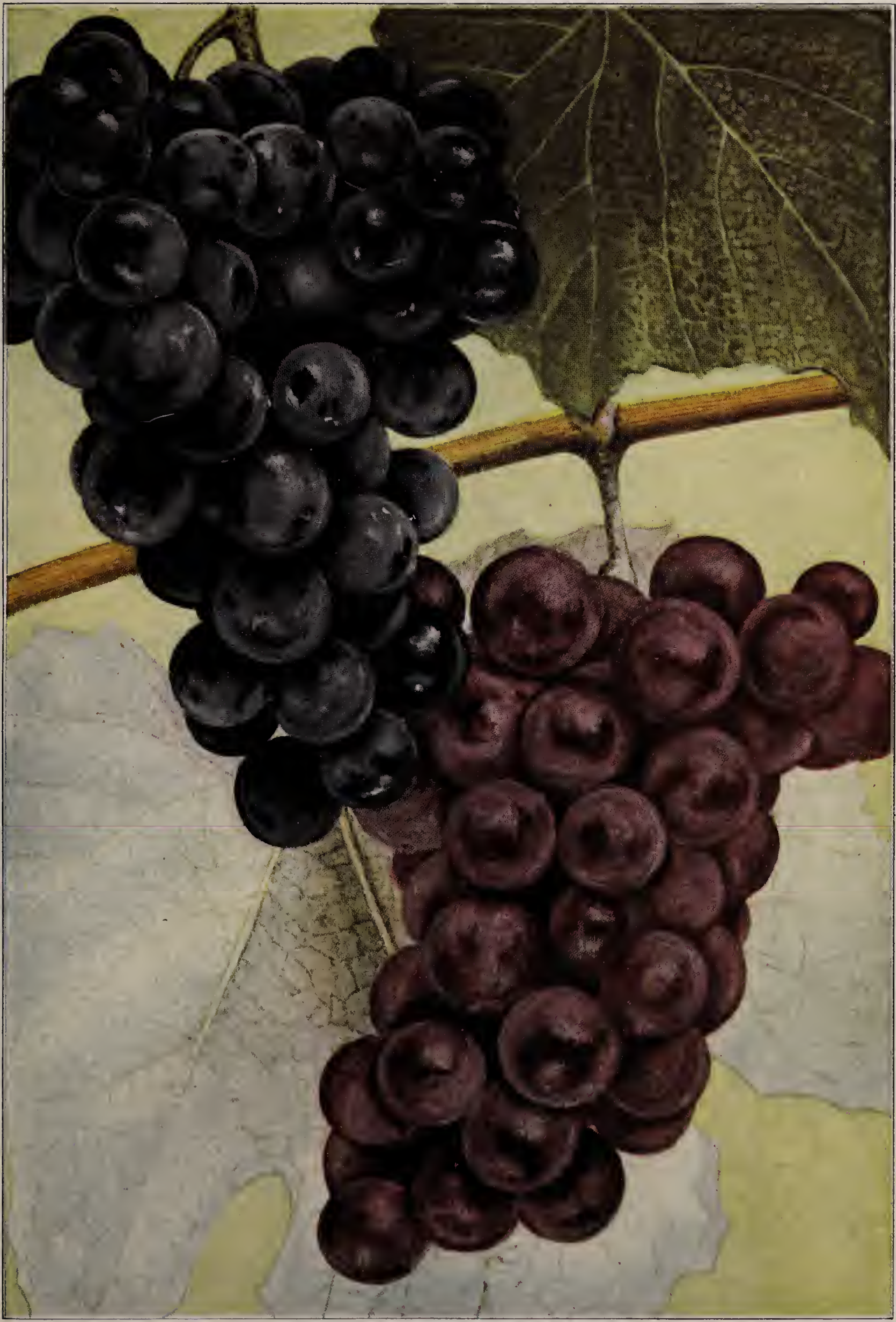
The plants live to a great age under favorable circumstances, attaining immense size if permitted—a single vine may give an annual crop of several tons. The general rule is, though, to confine them to close and moderate growth of "bush" dimensions.

There are two main divisions in the grape culture of the United States. The Pacific slope vineyards are almost exclusively of European varieties—all of them of the *vinifera* species—the grape of history and the Bible. Those of all the other states,

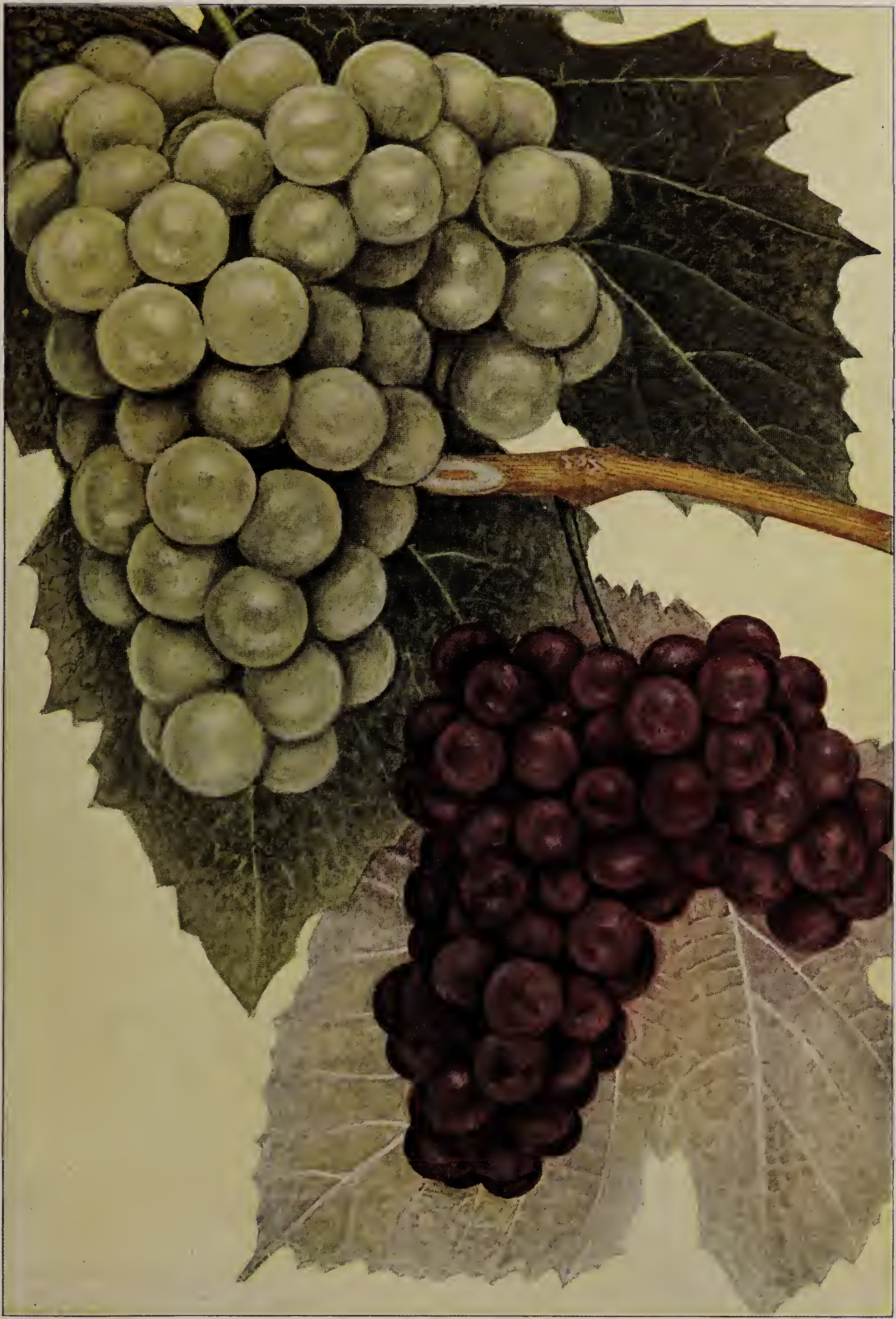


Copyright, Keystone View Co.

Scenes of the vineyards along the Rhine



Concord GRAPES Catawba



Niagara GRAPES Delaware

Copyright, J. Brocherel

Grape-pickers carrying the filled tubs to the collecting wagons, Aosta, Italy

except the southern, are devoted almost entirely to native grapes of the *labrusca* and *aestivalis* species, chiefly the former, and their hybrids with each other and with European varieties. The South adds native grapes of the *muscadine* species.

Vinifera grapes are sweeter, larger in berry and bunch, and (generally) more tender and solid in pulp than the native American grapes of the North and East. They are excellent table grapes of the sweet type and the only kind suitable for drying as raisins. It is therefore unfortunate they cannot be commercially grown except on the Pacific slope and a few parts of the South because of their susceptibility elsewhere to phylloxera and mildew.

Among the most widely cultivated of Pacific vinifera varieties are the black Zinfandel and Alicante (formerly grown chiefly for wine-making); the California White Muscat (the ideal raisin grape); and the bright red Flame Tokay, the "white" (i.e., green) Malaga, the red to black Emperor, and the black Cornichon (for shipping as fresh fruit). The fresh berries of these fine varieties are typically large and very "fancy" in appearance, and the bunches occasionally weigh up to twelve pounds each.

The Zinfandels and Alicantes are now marketed principally as fresh fruit, the remainder of the crop being dried and sold as "dried grapes"—a distinctive title for those that are less sweet and of higher acidity than the standard "raisins"—to be used for wine-making, jelly manufacture, etc.

Also of importance is the crop of seedless varieties, sold chiefly as raisins.

Currants (i.e., grape currants—see the article on CURRANTS) are cultivated but the industry is a minor one.

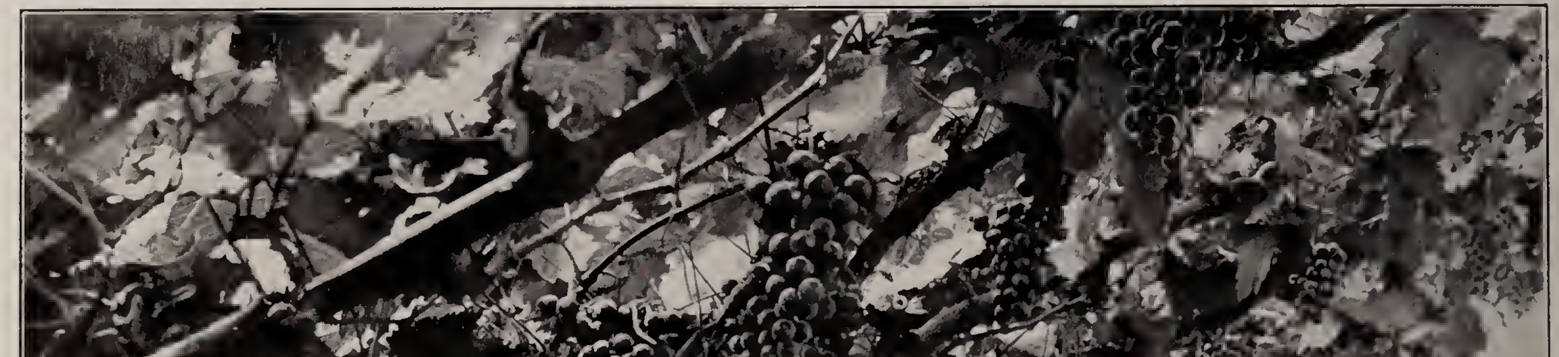
The best known grape east of the Rockies is the Concord, a black *labrusca* grape, consumed to a prodigious total as a fresh fruit and in the form of grape juice and grape jelly. It is not so choice for eating raw as some less familiar varieties, but it is popular among viticulturists as a strong grower and very productive. It seldom fails to yield a paying crop and the fruit is nearly always of good size and color and attractive bloom. The low price made possible by its abundance compensates in the general market for mediocrity of flavor and composition. It should be used as quickly as possible, as it does not keep well after ripening.

Among others largely cultivated are the Delaware, a hybrid of European and American varieties, and the Catawba, Niagara, and Worden of Labrusca strain. The Concord, Delaware, Catawba, and Niagara are illustrated in the color-pages facing 232.

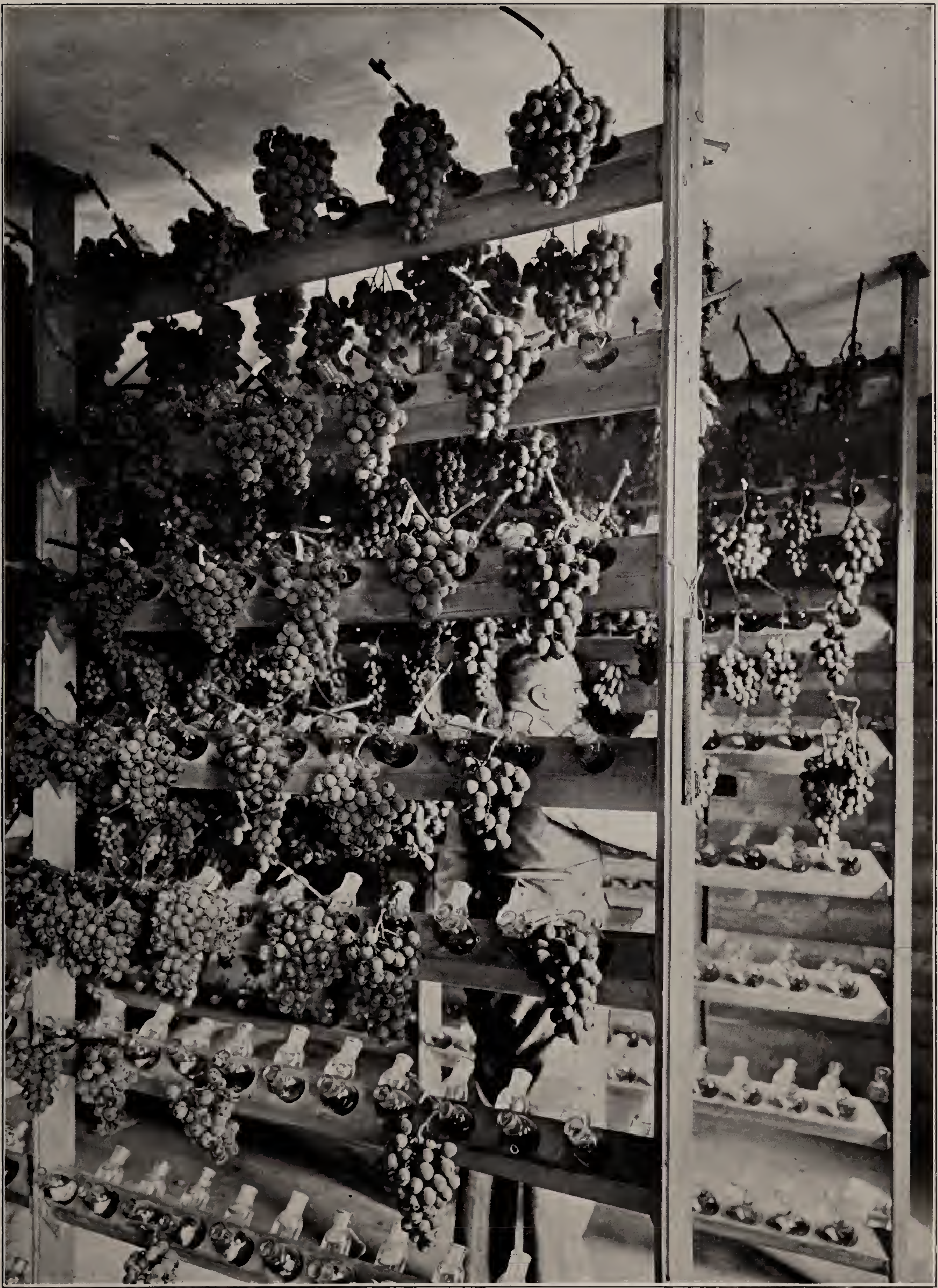
The Delaware, reddish in skin color and the smallest of the four, is of specially fine quality—very sweet and of delicate flavor, as choice a table fruit as anywhere grown. It is not however a prolific bearer, and its market price is generally double that of the Concord.

The Catawba is medium in size, oval to roundish, of a dull purplish red with lilac bloom, and of excellent flavor. It is sweeter than the Concord and the Niagara but less sweet than the Delaware. It is one of the latest on the market and is a good keeper, with care being held over until March or even later. It is, however, often picked when immature, before its best qualities have developed, and other grapes of similar appearance are too frequently sold under its name. It is particularly interesting as one of the earliest of native grapes to be cultivated.

The Niagara is a green berry of fair quality and moderate price.



Grape-growing under glass



Jacques Boyer, Paris

Grapes held fresh in storage, each in a vial of water, Thoméry, France

The Worden is similar to the Concord.

The southern *Muscadine* referred to on page 233 flourishes, both wild and cultivated, from the James River south and west to Texas. This type is so different both from other native species and from the vinifera that it is treated separately under SCUPPERNONG, its best known variety.

Hothouse culture of grapes has not made important headway in this country, but it has long been practised in England and Belgium, producing fruit of fine flavor and quality, and of great size—up to a berry circumference of 4½ inches—in clusters that may weigh as much as thirty pounds. There is a small but fairly regular importation of these grapes, generally packed in boxes containing six to seven pounds each.

Hothouse vines are always of the vinifera, and the black Gros Colman, Hamburgh, and Barbarossa, the "white" Muscat of Alexandria, and the pink Frontignan are prominent among favored varieties.

The principal imports of fresh grapes are of the large, meaty, Spanish "white" berries commonly known as "Malagas," from Malaga, the principal port of shipment, and "Almerias," the latter being generally the larger and of finer flavor. They reach our markets during the fall and winter months, packed usually in cork-dust in kegs weighing about forty pounds. Because of their firmness and excellent keeping qualities, they occupy an unique position in the trade. When unpacked, they should be carefully brushed with a soft brush to remove the cork.

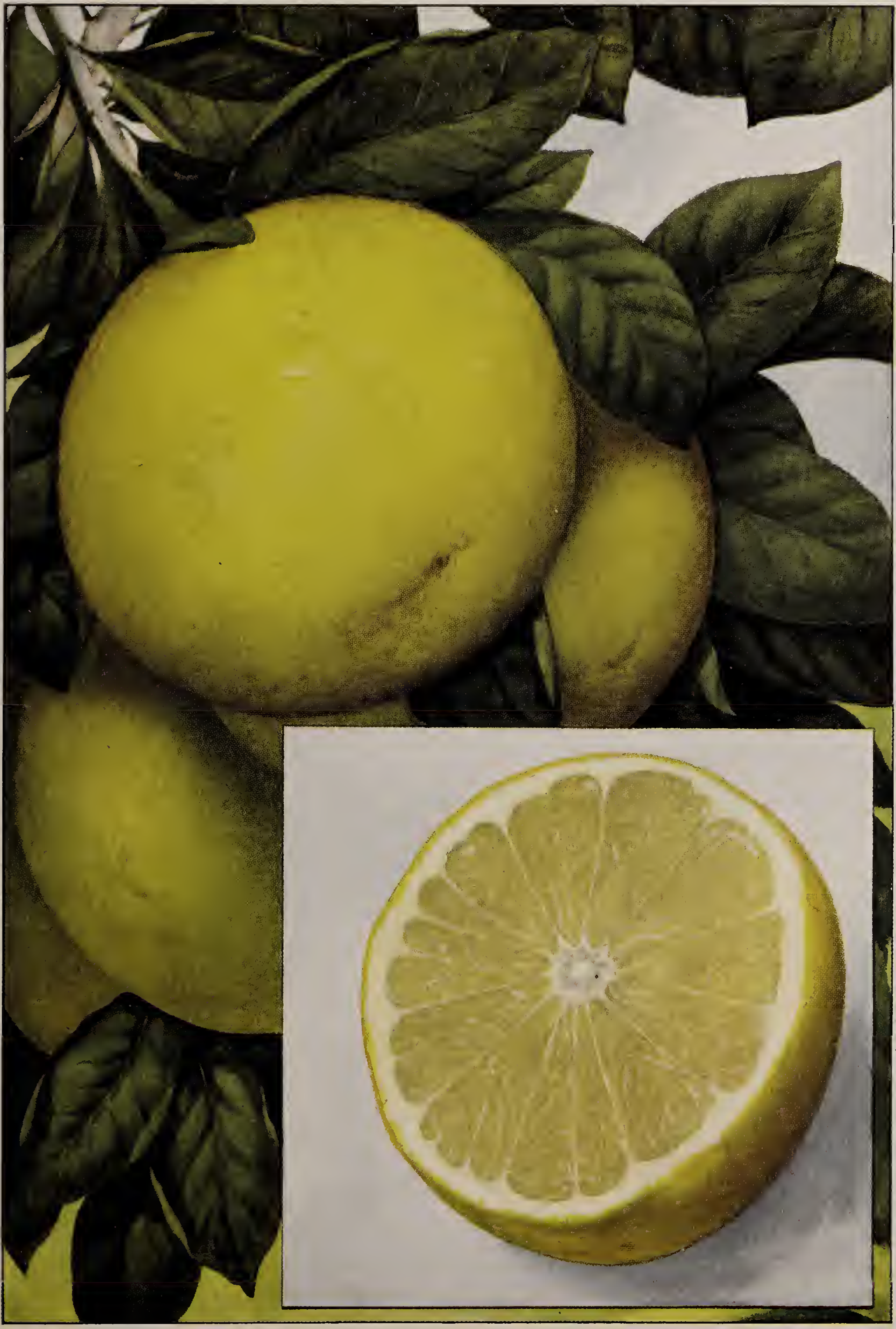
The title "Malaga" is frequently but incorrectly applied to any large, oval, white grape.

Fancy grapes can be kept in good condition for several weeks by wrapping each bunch in tissue-paper or waxed paper, encasing with cotton-wool, tying the ends, and keeping in a cool place. More common varieties may be held without injury for from six to eight weeks by packing in dry sawdust in boxes and storing in a temperature averaging 38° to 40° Fahr. An objection to the latter method is that the odor of the sawdust—unless it be California redwood or other sawdust of neutral odor—may affect the flavor of the fruit.

In Thoméry, and elsewhere in France, thousands of bunches are preserved for months in their initial fresh, sweet flavor by setting each bunch in a little vial of water held in a rack in a dark, cool, dry storage-room. A small piece of wood-charcoal is placed in each vial in order to prevent the souring of the water. A photograph of one of these storage-rooms is reproduced on page 235.

See also GRAPE JUICE and RAISINS.

GRAPEFRUIT, or Pomelo (see color-page opposite), the juicy, refreshing, slightly bitter fruit of a large, round-topped tree with glossy, dark green leaves, introduced into Florida by the Spaniards early in the sixteenth century. Recognition of its value was deferred for a long time, partly because its peculiarity of flavor was not at first acceptable to the American palate, and partly because of lack of care in its culture and poor judgment in marketing. Now, however, in its greatly improved forms it has made a complete conquest of both North and South, and is to-day the prime favorite of breakfast fruits, and of frequent appearance also at luncheons and dinners, and on many other occasions. Its name—frequently assailed but firmly established—had its origin in the grape-like clusters or bunches in which it generally grows. Its other title "pomelo" comes from the Dutch *pompelmoes*. It is a distinctively American fruit, for all the varieties of common cultivation in India



GRAPEFRUIT (reduced)

and other Old World countries remain of the Shaddock (which see), or "pummelo," type (of the same citrus species), which at one time divided attention with it here but which it has completely supplanted in our markets. Its size range is from four to six inches in diameter. The yellowish pulp is characteristic and is seldom departed from, but there are pink-fleshed strains.

The grapefruit is an excellent antiscorbutic, and for many people possesses distinctly tonic qualities. For its highest zest it should be eaten without sugar, but the sugar addition renders it especially enjoyable to most palates! It is still occasionally misjudged because of the survival in some degree of a formerly widespread error of eating it more or less unripe. It should be allowed to mature just as fully as any other fruit—only thus can one experience its fine qualities and true deliciousness.

A bunch of grapefruit

The citric acid of the juice is largely oxidized in the human system—becoming alkaline instead of remaining acid—but in planning a diabetic diet it is important to remember that a good grapefruit contains fully as high a sugar percentage as a sweet orange—sometimes a little higher. Half a large, choice specimen will hold the equivalent of one to two teaspoonfuls of granulated sugar. This fact is so well concealed by the bitter-sour flavor that it is often overlooked.

Grapefruit is commonly served simply halved and seeded (unless, of course, a true seedless specimen), or with the flesh cut in cubes and returned to the half-shell, sugar then being sprinkled on, and the whole left to stand on ice or in the refrigerator for half an hour or more. The latter method permits the sugar to permeate more thoroughly and also makes for easier eating.

Grapefruit is also preserved in considerable quantities, its bitter taste making it especially suitable for marmalade, separately or in combination with oranges, etc. Its pectin, or "jellying," content is greater than of any other citrus fruit.

GRAPE JUICE. Pure grape juice is what the title implies—essentially the full, unadulterated juice of the fruit, carefully filtered, and promptly sterilized to prevent fermentation. Its principal component is grape-sugar (from 15 to 27½%) together with small quantities of tartaric and malic acids, etc. Its drinking quality varies, as would be expected, with the species and variety of grapes used. The typical grape juice of the eastern and central states, made of Concord and similar grapes, is subacid and only moderately sweet (a small quantity of sugar is frequently added); that of California of vinifera grapes is very sweet and so low in acid content that it is often blended or acidified to give it "sprightliness."

Grape juice can be easily made at home, and the pressed residue can be profitably employed for the making of jelly, catchup, and fruit paste. The chief essentials are:

(1) The selection of sound, fully ripe fruit of a variety known to be suitable for the purpose. Black and red grapes are best. If an eastern housewife wishes a milder, sweeter juice than that of the Concord style, she can obtain an excellent product from Delaware or Catawba grapes. Of the Muscadine grapes (see MUSCADINE and SCUPPERNONG) the most satisfactory for the purpose is the Thomas.

(2) Prompt pressing—with care to avoid crushing the seeds. Cold pressing is always best for California (vinifera) and Muscadine grapes, and is preferable also for eastern grapes (Concord, etc.) in inexperienced hands.

(3) Permitting the juice to stand undisturbed for five hours or so in a cool place, then straining the clear part above the sediment through two thicknesses of clean cheesecloth, and (if necessary or desired) sweetening, or blending, or acidifying.

(4) Filtering—as through a flannel jelly-bag.

(5) Placing in sterilized jars or bottles, capping, and pasteurizing. In pasteurization it is important to avoid raising the temperature of the juice above 190° Fahr. Any degree above is liable to be detrimental to the flavor; 200° Fahr., or higher, will certainly spoil it. Pasteurization is effected by one hour at 165° Fahr. or four minutes at 180° to 185° Fahr. (as temperatures of the juice, not merely of the water surrounding the jars or bottles). A third and, for the average individual, an easier method is to set the containers in cold water and slowly bring the heat (of the juice) up to 180° to 185° Fahr. If to be capped after pasteurization, the temperature is obtained by thermometer test of one or more of the containers. If capped before pasteurizing, the water temperature should be checked at 180° to 185° Fahr. and maintained at that point for a short time. Experiments by the United States Department of Agriculture have shown that, with a washboiler reasonably full, four minutes is sufficient for half-pint bottles, five minutes for pints, ten minutes for quarts, and twenty minutes for gallon jars.

A second filtering after some months of settling (followed of course by repasteurization) greatly improves the appearance of the product.

The color of the grape juice secured by cold pressing will nearly always be white or yellowish instead of the purplish red of the greater part of the commercial product, as there are only a few grapes which have pink or red juice. The red tint can be obtained, if black or red grapes have been used, by heating part of the juice and pouring it over the squeezed skins. Almost any shade of red may be thus secured, according to the variety of grape and the length of time the juice is allowed to remain on the skins. This process also adds other substances, chiefly tannin, to the product, the advantage or disadvantage of which depends upon individual tastes—the result more closely resembles ordinary sweet red wine, though it is still non-alcoholic.

As many people find grape juice too sweet as a straight beverage, it is often better enjoyed when served diluted with water—either plain or carbonated. It has many other uses—in mixed beverages (added to lemonade, etc.), in the preparation of desserts (as ices and gelatins), and in mixed salads.

From a dietetic standpoint, grape juice is essentially a solution of grape-sugar flavored in a manner that is pleasing and refreshing to the average palate.

GRAPE-SEED OIL, a product closely resembling olive oil. It is used in Europe for both culinary and illuminating purposes.

GRAPE-SUGAR. See GLUCOSE.

GRAYFISH, a modern name for the "horny dogfish" (*Squalus acanthias*), a small shark which was formerly considered an unmitigated curse by fishermen because of its frequent destruction of their nets and its voracious depredations on other fish and young crustaceans, but which has in recent years acquired standing as a valuable food-fish, marketed fresh, smoked, and canned. The average market weight is about seven pounds—large specimens reaching fifteen pounds or more. They are viviparous, as the large sharks, with five to nine young to a birth. The by-products of the grayfish are important, its hide being utilized as shagreen, and its liver oil for dressing leather.

GRAYLING, the general title for a number of small, salmon-shaped, beautifully marked, highly regarded fishes of fresh waters of the Northwest. The most plentiful are the Arctic, or Alaska, and the Montana.

GRAY SNAPPER, or Mangrove Snapper, a handsome southern fish, less important than its cousin, the redsnapper, but nevertheless much sought both as food and game. Its upper part is dark green, with blackish and white markings. Its average market weight is from two to five pounds, with a maximum of about eighteen pounds.

GREEN-GAGES, small, round, green or yellow-green plums, sweet and typically of good quality and "sprightly" flavor. They are popular in every style—fresh, canned, and preserved. The original variety was produced in France, where it is known as Reine Claude, from Claude, Queen of Francis I, the title being retained here as the name of the strain most common in eastern orchards. The English title of "green-gage" is after a clergyman named Gage who introduced it into England. (See also the general article on PLUMS.)

GREEN KERN, dried green wheat. It is used chiefly for soups and in stews.

GREENS, a general term for any green herbage, either cultivated or wild, served as a cooked vegetable or in soups, etc. Among the best are beet-tops, cabbage, chard, dandelion, endive, kale, mustard, petsai, spinach, and turnip-tops. (See under the titles of individual vegetables and also the general articles on FOOD VALUES and VEGETABLES.)

GREEN SLOKE, a green-spored seaweed of the same type as LAVER (which see).

GRENADINE SIRUP, the general title of pomegranate sirup. See FRUIT SIRUP.

GRISKIN. (1) The lean part of pork loin (see PORK). (2) In Ireland, a slice, or other small piece, of meat, roasted generally on live coals.

GRISSINI, an Italian stick-bread. See FINGER ROLLS.

GRITS, GROATS, hulled grain, either whole or coarsely ground, particularly the latter—as hominy grits, wheat grits, and oat grits. In the household, they are served both as breakfast cereals and as vegetables. They are also useful for preparing gruel for invalids (see Gruel) and for thickening broths and soups. ''Groats'' are generally of larger size than ''grits,'' and are more commonly of wheat, oats, and barley than of corn.

''Embden groats'' are barley or oat groats.

GROCER. The modern grocer is the distributor of so large a proportion of the foods by which we sustain and embellish life that his calling is entitled to place and consideration in this work.

It is probable that the average individual holds the idea that grocery-stores have always existed. On the contrary, their establishment dates back only a few hundred years. Their early history is that of the English grocer, and established shops for the sale and barter of commodities were little known in England prior to the opening of the twelfth century. Pedlars (or ''chapmen''), instead, traveled from hamlet to hamlet with packs of fine cloth, jewels, wine, salt, spices, tallow, and wax—and their traffic was confined almost entirely to the nobles of the castles and the priests of the monasteries. Only such necessary articles as salt and tallow were designed also for the ''common people''—they perforce relied for their needs chiefly upon what they could raise and make themselves.

Later, as pedlars became more numerous, the Market was developed in town, and the Fair periodically supplied the country districts also with a means to buy—and sell and exchange—goods.

The immediate forerunner of the grocer was the ''Pepperer,'' or ''Spicer,'' whose trade had become well established in London prior to 1180, as mention of a Pepperers' Guild of London is found as early as that year. These tradesmen dealt in pepper, cloves, nutmegs, mace, ginger, and other spices, painfully transported from remote India. Spiced drinks and richly spiced foods were greatly in vogue among people of wealth, for food at that early period was coarse and not always wholesome. The guild of Pepperers ceased to exist shortly after 1338, in which year a heavy loan was extorted from it by Edward II.

The earliest use of the word ''grocer'' occurs in 1310 in the city-record report of London. The term probably originated through certain medieval traders who ''engrossed,'' or attempted monopoly, by the purchase of large quantities of merchandise. It has also been attributed to the leading merchants of that time, who bought only ''in gross'' (*en gros*), or in large quantities.

The fifteenth century in England finds nearly all trades formed into guilds, and these guilds were in many cases provided with full authority to rule the affairs of their occupation. This power was received either directly from the King through a special charter, or, if in London, by delegation from the Lord Mayor. Each trade was supposed to be responsible for, and preserve, its ''good name and fame.''

The greatest of all guilds was the Grocers' Company of London, founded in 1345, and its history is to a large extent the history of the trade in England for more than four hundred years. It was empowered to ''garble'' (inspect and cleanse) all groceries in the city of London. Its representatives held the right to enter any store and inspect the merchant's stock, and to arrest, try, and punish any offender selling impure or spoiled goods. And punishment of offenders under the Pure Food Laws of that period, and later, did not always stop at a fine; it was often found more effective to place the guilty one in stocks and then burn his corrupt wares in such propinquity to his nose that the full offensiveness of his misdemeanor was made powerfully evident to him! The grocers' guild retained this office of garbling up to the end of the eighteenth century.

The great Levant trading company was an offspring of the Grocers' Company, and in 1600 a number of the leading grocers of London formed the famed East India Company and were thus responsible to a large extent for the building of England's Indian empire.

Until 1617 apothecaries were included in the grocers' guild. Their separation in that year was the result of a long period of agitation on the part of the physicians and many dissatisfied members of the drug trade. The division was finally brought about by King James, who was inimical to the Grocers' Company and a friend of the apothecaries.

The introduction into England, about 1650, of tea, coffee, and chocolate resulted in a great impetus to the grocer's business. The demand for tea, and later for coffee, increased with remarkable rapidity, and in a very few years—in spite of the denunciation with which they were first greeted by both doctors and clergy—they became, with sugar and spices, the chief staples of the trade. Since then, its field has steadily widened and developed.

A recent estimate places the number of grocery-stores in the United States at more than 220,000. The grocer, anciently a purveyor to the rich alone, has expanded into the broader dignity of dispenser to all classes, and has become an important distributor of the necessities as well as the luxuries of life.

GROUND-CHERRY (also known as *Alkelengi, Husk-tomato, Strawberry-cherry, Strawberry-tomato,* and *Winter-cherry*), the fruit of a very productive plant which grows wild in many parts of the world—in this country, most freely in the cornfields of the lower Mississippi Valley—and has recently been added to the list of cultivated crops. It is about the size of a cherry; generally orange-yellow or red, but also sometimes green and purple; juicy and slightly acid in flavor. It matures inside a bladder-shaped calyx and (if left in the husk) can be kept through the winter. It is equally good raw and in the form of preserves, and is blended with chilies in the manufacture of chili sauce.

GROUNDNUT, another name for the PEANUT (which see). It is also (among various other uses) applied to the nutty tubers of the "wild bean," a pretty twining perennial native to the eastern states. The tubers, known locally as "Indian potatoes," are one to two inches long and are attached in strings.

GROUPERS, an important genus of tropical food-fishes, stout in body and more or less compressed, with several species attaining large size. Their flesh is firm and good, though generally somewhat coarse. The most valuable are the *Red grouper,* of warm brown with under-flushings of red, its market weight averaging from eight to fifteen pounds—large specimens reaching up to forty pounds; the *Nassau grouper,* of Key West southward, a still bigger fish, averaging only about ten pounds in the markets but attaining a length of three feet and a weight of fifty pounds—of pale olive-grey, marked by broad, dark-brown vertical bars enclosing small whitish spots; and the comparatively small *Rock-hind,* of greenish-grey marked with whitish and blackish blotches and round orange-brown spots. All of these are found off southern Florida, and thence southward, and the Red grouper also along the Gulf Coast. Two other varieties, caught on the snapper-banks off the West Coast of Florida, are the *Yellow-finned grouper* and the *Speckled-hind,* the latter dark umber-brown, marked with pearl-white spots, and attaining thirty pounds.

The South consumes most of the grouper catch, but they are found in northeastern markets from November to March.

The "black grouper" is given place under the title of Jewfish (which see).

GROUSE. The title "grouse" is applied to a large family of American game-birds, the most important of which are the Prairie-chicken, Ruffed Grouse, Sharp-tailed Grouse, Dusky Grouse, Black Heath-cock, Sage Grouse, and Ptarmigan. In the East, custom generally reserves the title "grouse" for the Prairie-chicken, and applies the name "(American) partridge" to the Ruffed Grouse. Both of these birds are shown on the color-page opposite.

The Prairie-chicken—the market "grouse" (or "pinnated grouse")—owes its name to its resemblance to the domestic hen. Its upper plumage is brown with blackish and white markings, and the breast and under-parts are whitish with brown and black marks. It averages about 3½ pounds to the pair.

The Ruffed Grouse—the market "partridge" (also called "pheasant" in some parts of the country)—takes its name from the "ruffs" of feathers at each side of its head. It is the most prized of American grouse, being (generally) the most delicate in meat, and corresponds closely to its near relative, the famous hazel grouse of Europe. It is larger than the English or Scotch grouse. Its plumage varies in different regions, but its upper coloring is typically of chestnut varied with yellowish-brown, white, black, and grey; with buff-colored breast, under-parts whitish with brown marking, and tail, long and grey-brown or yellowish. It feeds principally on fruits, herbs, and seeds—to which diet is attributed the excellent flavor of its flesh. The average market weight is 2½ pounds a pair.

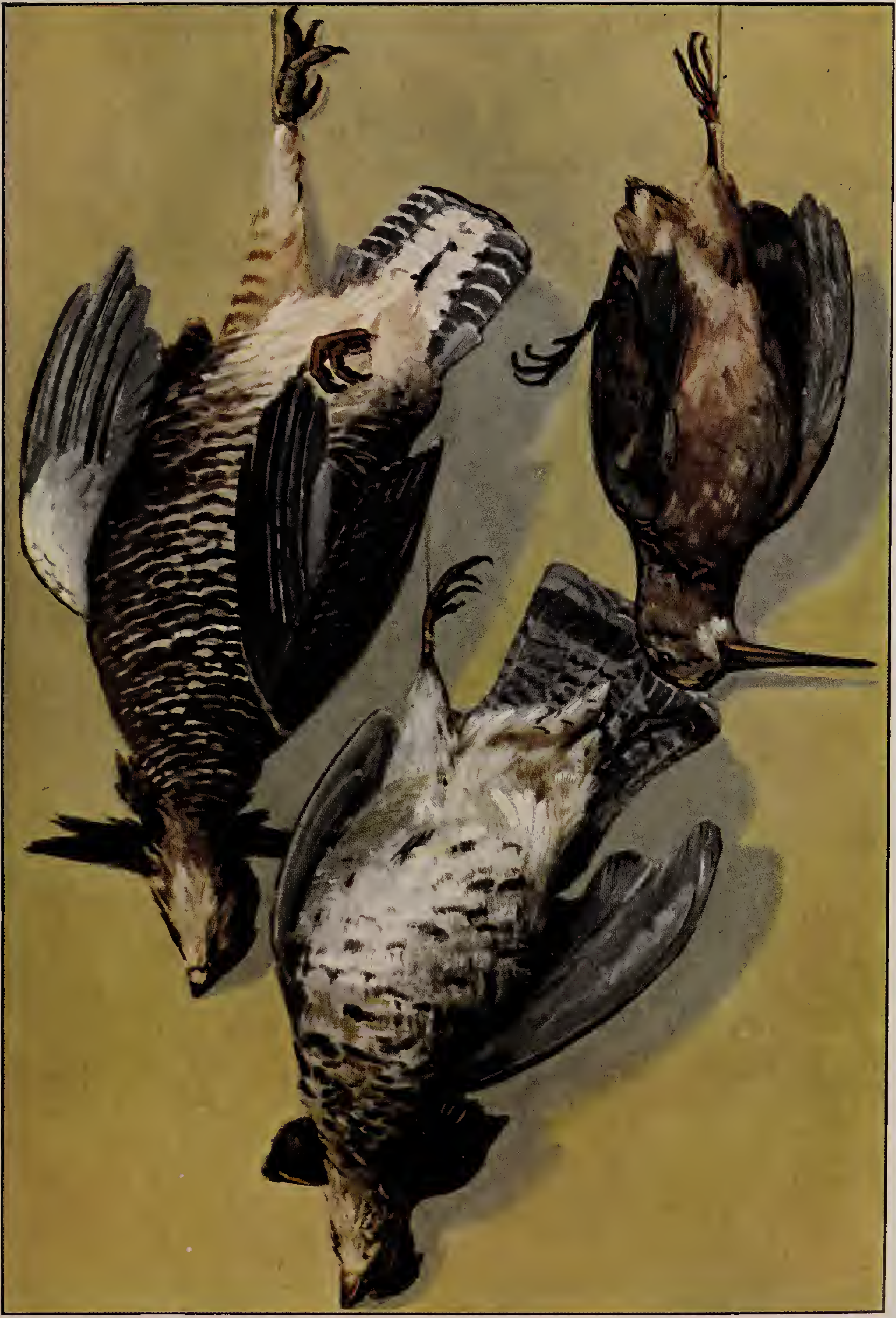
The Canadian ruffed grouse is similar in general appearance except that grey instead of chestnut is the predominating color of the plumage.

The *Sharp-tailed Grouse,* also known as the "prairie-hen," is usually a little larger than the prairie-chicken, of lighter color and with longer, more pointed tail.

The *Dusky Grouse,* also called "blue grouse," "grey grouse," and "wood-grouse," has the upper plumage blackish-brown mixed with lighter brown and grey, and the under-parts bluish-grey and white. It is also distinguished by its rounded tail of broad, dark brown feathers. The adult attains a weight of two and a half to three and a half pounds. The flesh is delicate (though perhaps a little too gamy if the bird has been feeding freely on pine foliage), and as light in color as that of a domestic hen.

The *Black Heath-cock,* or "spruce grouse," or "Canada grouse," is a rather smaller bird than the Ruffed. Its second name refers to its favorite winter diet of spruce-tree shoots. Its upper plumage is greyish, with shining, rich, bluish-black markings, and its underbody black and white. The tail is black, tipped with reddish-yellow brown. The under-part of the female is reddish-brown with black markings. The flesh is rather dark.

The *Sage Grouse* is the largest American game-fowl excepting the wild turkey, attaining occasionally a weight of eight pounds. It is distinguished by its grey back, with darker markings, black breast, and long tail. Its favorite diet is composed of the leaves and shoots of the sage brush, and when this is adhered to exclusively the result



Ruffed Grouse, or
"American Partridge"
(See *Grouse*)

Prairie Chicken, or
"Grouse" (See *Grouse*)

Woodcock

The illustrations are a little less than one-third the linear measurements of fair specimens

is an over-strong sage flavor in the flesh. Its food is, however, generally varied and its flesh consequently as pleasing as that of more highly rated birds.

The *Ptarmigan* is the extreme northern variety of the group, making its habitat in Alaska and other parts of the arctic regions. During the summer its plumage is generally grey and brown, with black feathers in the tail, but the costume is changed for white with the approach of the winter snows. The best known, largest, and most abundant is the White ptarmigan, also called "willow ptarmigan" and "willow grouse." The flesh of the young bird is white and delicate. That of older specimens is generally rather dry and sometimes bitter when willow-buds have formed too large a share of its diet. The Rock ptarmigan is a smaller variety. It has the same general appearance, but is distinguished by a black line from its bill to the eye. The White-tailed ptarmigan is an exceptionally handsome bird formerly slaughtered in great numbers to obtain its feathers for millinery.

GRUEL, coarse meal or groats—or any other cereal product, as arrowroot, flaked oats, or wheat-flour—boiled with water to a proper consistence and strained. For invalids the cooking should be continued for several hours. It is variously flavored to suit the palate. Milk or butter is also sometimes added, but the former should not be mixed in until shortly before serving. Gruel was formerly served as a popular hot beverage in London coffee-houses.

GRUNT, or Common Grunt, an excellent southern food-fish, particularly abundant off Key West, light bluish with brown or brassy spots and other markings. As generally caught it is classed as a pan-fish, but big specimens will reach four pounds in weight. The Margate, or "Margaret," grunt is a related species, larger in size, also valuable and also of the South.

Common grunt

GUANABANA, the West-Indian name of the Sour-sop (which see).

GUARANA, or "Brazilian Cocoa," a Brazilian preparation of the seeds of a native plant, *Paullinia cupana,* used to make a stimulating and restorative beverage of the same general character as our coffee and tea. It has a bitter, astringent flavor and an odor suggesting roasted coffee. Its chief principle is caffein. In manufacture, the seeds are dried and ground, then slightly moistened and shaped into rolls like sausages (five to eight inches in length and twelve to sixteen ounces in weight), and sun-dried or baked. Some whole or coarsely broken seeds are usually added to the meal, and balls may be formed instead of rolls. The result resembles chocolate in appearance but is extremely dry and hard. The general method of infusion is to grate into sweetened water, either hot or cold.

A lighter, softer product is made by blending with cocoa-beans or cassava.

GUAVA (see color-page of Tropical Fruits opposite), the fruit of several species of the guava-tree, growing abundantly in tropical America (particularly in Mexico and the West Indies) and to a considerable extent also in California and Florida. In the latter state it has run wild in some parts.

Guavas

The Common guava varies from round to pear-shaped (it is generally oval) and from yellow to red, with a thin skin enclosing an aromatic pulp, sweet or slightly acid. It ranges from one to four inches in diameter, the average being about two inches. It is only mediocre as a raw fruit but it is delicious cooked and canned; as jam, jelly, paste, or "cheese," and sirup.

Another species worthy of note is the "Cattley," or "strawberry," guava, less flavory than the common guava but nevertheless very popular in California for jelly making. The skin is purplish maroon, and the pulp (almost meltingly soft) is a translucent yellowish white.

The California "pineapple guava" is not a true guava, but is of a closely related genus (*Feijoa*) and of similar style, with dull green or reddish-green skin and a marked pineapple flavor.

The "Chilean guava" is a myrtle fruit (see Myrtle).

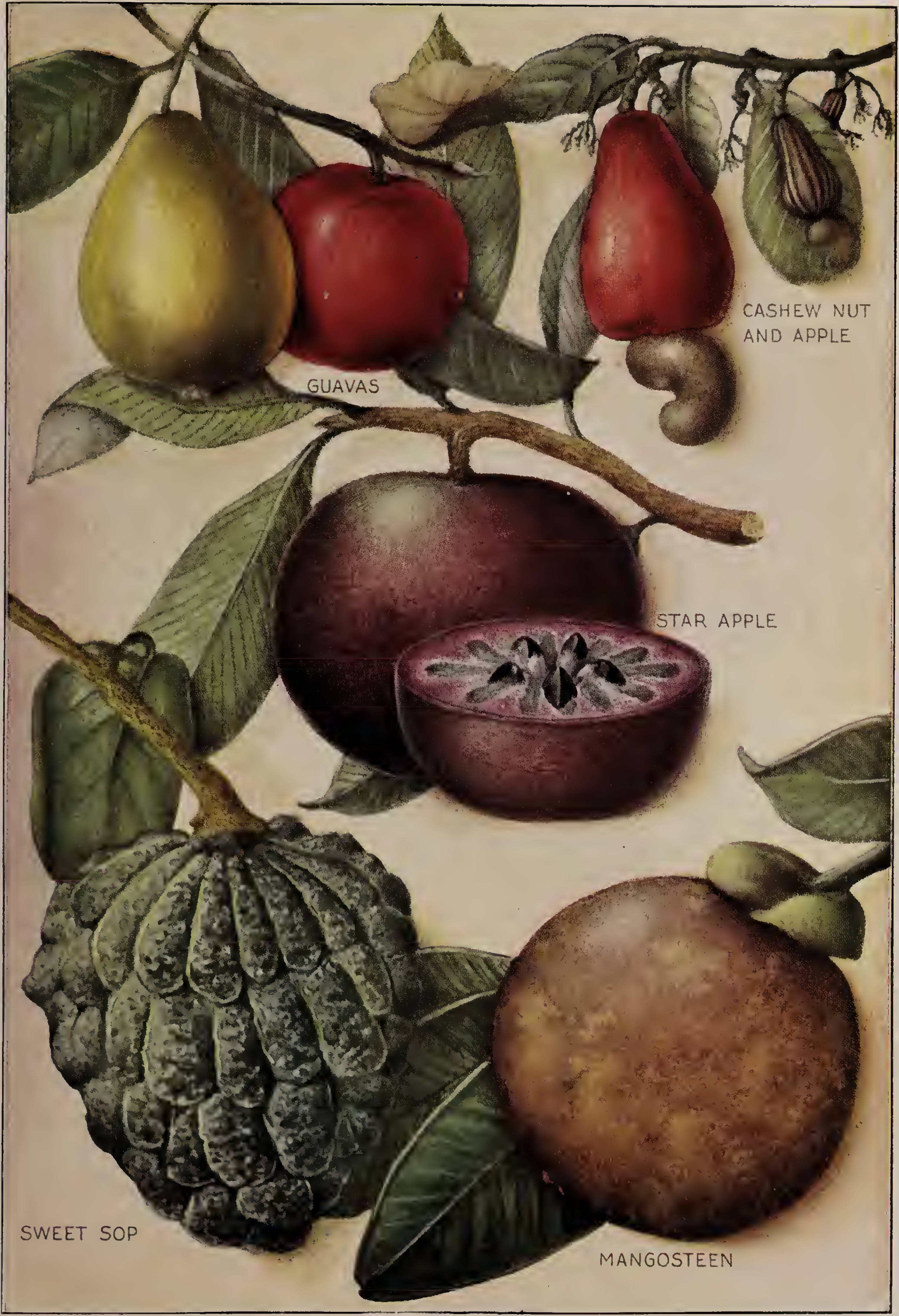
Guava jelly is usually marketed in screw-capped glasses or in neatly wrapped white wooden boxes.

Guava paste, or "cheese," is the fruit reduced by boiling, the minor grades consisting principally of the pulp residue after the extraction of the jelly. It is yellowish or reddish and of glutinous texture. It should be solid enough to slice well and is most appropriately served with the cheese course. The best qualities are choice and fragrant. It should be consumed as fresh as possible because of its tendency to crystallize.

Guava sirup is generally dark, thick, and very rich.

Guava vinegar is sometimes prescribed for digestions that do not readily accept other vinegars.

GUINEA-CORN. See Sorghum.



TROPICAL FRUITS
¾ diameter

GUINEA-FOWL, the descendant of the wild *Numida meleagris,* one of several game-birds styled "guinea-fowl" inhabiting the region long known as Guinea along the West Coast of Africa. It belongs to the same order, *Gallinæ,* as the common domestic fowl, and was raised as a table bird by the ancient Greeks and Romans. Later it was apparently overlooked, not coming into vogue again for centuries. It is not as thoroughly domesticated as some other kinds of poultry, but both supply and demand have been steadily increasing of late years. Its popularity is due both to the excellent quality of its flesh, especially in young and caponized birds, and to its slightly gamy flavor, resembling somewhat that of the partridge. It serves as an acceptable substitute for game when that is unobtainable or out of season.

The "pearl" guinea-fowl, the most common poultry type, has purplish-grey plumage evenly dotted with white, the ears and sides of the head white, the helmet horn-colored, sometimes replaced by a crest of feathers, the face and neck bare, the wattles bright red, and the legs reddish-yellow. Other domesticated varieties are the "lavender" (a lighter edition of the Pearl), the "white," and various crosses—among them, the "splashed guinea," with white breast and flight-feathers, the remainder of the plumage being of Pearl or Lavender style.

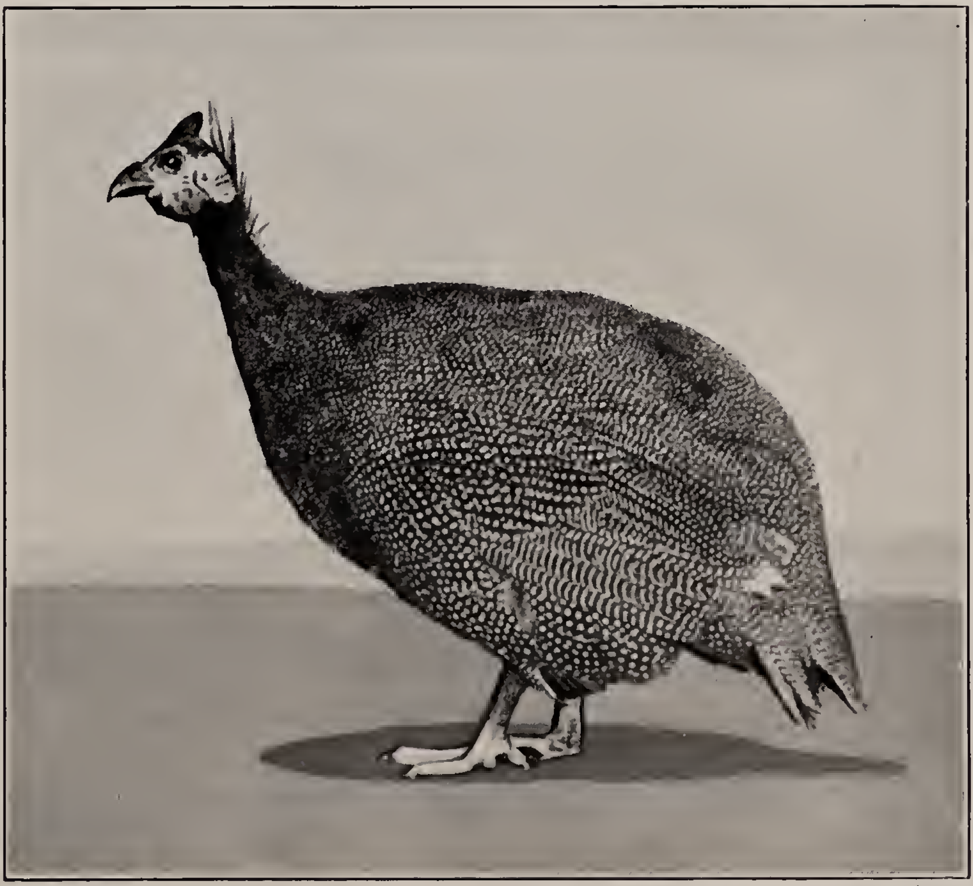
In general appearance the guinea-fowl retains nearly all the characteristics of the wild bird, the only marked difference being the change of the legs from dull-grey or brown to reddish-yellow.

The birds are of marketable size commencing with late summer or early autumn, the usual age being from four to eight months. A "squab guinea" should weigh from three-quarters of a pound up to 1¼ pounds; a "guinea chick" from 1½ to 2¼ pounds.

They are generally sold, like game-birds, unplucked or with only the breast feathers removed, their handsome plumage making them conspicuously attractive. As their feather coats are very thick, this method also makes them appear larger.

The tests for age given in the article on Poultry apply to the guinea-fowl, except that a purplish breast is to be expected. The breast meat is lighter in color than that of other parts of the body, but the flesh throughout is darker than that of chicken. Good market birds should have full breasts and fleshy limbs.

The birds may be cooked and served in almost any way employed for poultry or game-birds of similar age and size. The food value is



Bureau of Animal Industry

Pearl guinea-fowl

about the same as that of chicken. Boiled cereals, such as hominy, are an acceptable accompaniment in place of potatoes.

Many connoisseurs allow the guinea-fowl to hang for some days until just before the moment of "turning" in order to accentuate the gamy flavor.

Guinea-fowl eggs—rounder than hen's eggs and about half the size—are not generally appreciated by the American consumer, yet they are highly esteemed in Europe, where they are classed as little inferior to the very delicate "plover's" eggs.

Underwood & Underwood

Smooth-haired English guinea-pigs

GUINEA-PIG, or Cavy, a small, tailless animal native to South America and widely enjoyed there for its flesh, but which is best known in this country and Europe as a domesticated cage pet and as a valuable subject for laboratory test and experimental purposes. The wild cavy is generally orange and black on the upper parts, shading to yellowish underneath. Domesticated specimens vary greatly in color, the most common type being orange or reddish brown interspersed with black and white. A male cavy is at its best for the table when about four or five months old; a female from that age up to a year old—their weights at those ages being between one and two pounds. After scalding and scraping they may be cooked in any way suitable for chicken—"roasted" whole, fricasseed, etc. Their meat is tender and juicy, resembling 'possum in flavor.

GULL, a name popularly applied to a genus of natatorial, or swimming, birds which includes a great many varieties, the plumage of most of them white, with a slaty or greyish upper mantle. The most common American types are the Great Black-backed gull, the smaller Black-headed gulls, and the Herring gull. Their fish diet renders their meat too rank and coarse to be generally popular, but their eggs are in some parts an important item of local consumption.

GUMBO. (1) See Okra. (2) A title applied in the South to a rich Creole soup of mixed vegetables, herbs, meats, poultry, shellfish, etc., which generally contains okra as one of its ingredients. The soup commonly bears also the name of the chief character ingredient—as chicken gumbo, shrimp gumbo, turkey gumbo, squirrel gumbo, okra gumbo, and cabbage gumbo.

Gumbo Filé is any gumbo soup containing "filé," the dried, powdered young leaves and leaf-buds of sassafras—properly added just before taking the soup from the fire.

HACKBERRY, or Sugarberry, the small berry-like fruit of the big nettle-tree (*Celtis occidentalis*). It is oblong, from one-half to three-quarters of an inch in length, and dark purple when fully ripe; of pleasing sweetness and aromatic flavor. It is mildly astringent and is at its best after it has been touched by frost.

HADDOCK (see the color-page facing 470), a dark silvery-grey sea-fish, from 1½ to seven pounds in weight as generally seen in the markets—though often reaching double the latter figure. It is allied to the cod and very plentiful in the North Atlantic, off both the American and European coasts. Its flesh is of the first quality—white, flaky, and tender. "Deep sea" catches are generally considered the best.

Haddock curing in stacks

Smoked haddock—the fish split open, part of the backbone removed, and the head off, lightly salted and smoked—is best known as "finnan haddie"—that title having its origin in the reputation of the haddock cured around Findon, a fishing village near Aberdeen, Scotland. It is marketed in cans and boxes and is considered best during the winter months. It is an excellent breakfast dish, best served broiled, with melted butter or cream sauce; or toasted, with drawn butter. The supply was formerly almost entirely imported, but now the great bulk of the supply—and some of the very finest—comes from New England.

HAGGIS, a national Scotch dish which consists of a well-cleaned sheep stomach filled with minced, blanched, and cooked sheep's heart, liver, lungs, etc., mixed with oatmeal, onions, beef suet, and herbs, and cooked from two to three hours before serving. The stomach of a calf, or other animal, may take the place of that of the sheep.

Haggis is now sold in thick sausage form.

HAKE, a fish of the cod type, but of a different family. Large specimens attain a length of four feet. The meat is consumed both fresh and salted in the same way as cod, but is less desirable because of its tendency to be over-soft and watery. There are two species common in American waters—the "silver," or "New England" hake, or "whiting," of the Atlantic Coast, and the Pacific Coast fish.

The so-called "white" and "squirrel" hakes, or "codlings," of the New England coast and northward are of the cod family and are sometimes substituted for the true cod.

HALIBUT (see the color-page facing 332). The true, or Common, halibut—a huge flat-fish, brown and scaly above and white underneath—is one of the largest of edible fishes. The male seldom weighs more than fifty pounds, but the female has been known to exceed 700. Such a creature covers a good deal of floor space, for it measures more than ten feet in length and five in width. Specimens of 200 pounds upward are comparatively common. These very big fish are not especially desirable though, as their flesh is over-coarse. A fat female of seventy-five or eighty pounds is considered by connoisseurs to be the most savoury. The general market preference is for still younger fish—"chicken halibut"—averaging only two to ten pounds.

The halibut is a cold-water sea-fish, extending from latitude 40° far into the Arctic Ocean. American consumption is supplied from both the Atlantic and Pacific fisheries, but the Atlantic does not yield as abundantly as it used to. It is in season all the year and is largely eaten both fresh—generally broiled in the form of steak —and cured by salting and smoking. In England it is known as the "workhouse turbot" because of its cheapness.

Halibut is, indeed, often substituted for turbot. It can, however, be readily distinguished in the whole fish as the turbot has spots on the back and the halibut has not. The turbot is also much wider for its length than the halibut.

Brown Bros.

A 272-pound halibut

The "Greenland," or "little," halibut, or "Greenland turbot," is a smaller fish of the North Atlantic—yellow-brown on both sides (unusual for a flatfish), and averaging from ten to twenty-five pounds. Its flesh is more juicy and somewhat more delicate than that of the common halibut.

Representing a third genus is the "arrow-toothed" halibut (*Atheresthes stomias*) of the Pacific Coast—a good food-fish reaching a length of about two feet.

HAM, a pig's hind leg above the hock joint. It is generally sold salted and smoked, but also salted only (being then used generally for boiling) and fresh-boiled—in the last-named condition chiefly for retailing in slices or by the pound as "pork steak" or "fresh pork."

The curing process in the best qualities consists substantially of trimming, chilling, immersing for from forty to sixty days in a brine composed of table salt, granulated sugar, and a trace of saltpeter (the last-named to fix the color), washing, drying by hanging in steam-heated apartments, and smoking, the hams remaining in the smoke-house at a moderate temperature for about three days. Hickory wood or mahogany sawdust is commonly considered the best for smoking, but other woods are more highly favored in some countries—as juniper brush in Germany for Westphalia ham, and birchwood in parts of northern Europe—because of the distinctive flavors they impart. The final step is wrapping and sewing into canvas or burlap bags.

In the manufacture of cheaper qualities, the salting is more speedily performed by "pumping" the brine into the ham. The time allowed for smoking is also considerably reduced, a higher degree of heat being maintained in the smoke-house.

What was formerly known as a "picnic," or "California," ham is the shoulder with several pounds of the butt trimmed off.

Among the best known of foreign hams are: Westmoreland and York (England), Westphalia (Germany), Bayonne (France), Sprague (Hungary), and Spanish.

In purchasing a ham, it is best to choose one that is moderately fat—and of firm fat—and that weighs from eight to sixteen pounds; one thin of skin, short, and tapering.

Fat is essential to a good ham—if it is lean, it is nearly always lacking in flavor and tenderness. The famous Virginia hams from lean Virginia hogs are exceptions to this rule, their delicacy being attributed to the animals' summer diet of forest roots and acorns and other nuts.

A ham much under the minimum weight mentioned is generally lacking in flavor, as the meat is ordinarily too immature. It can be used for boiling, but it is not even for that as desirable as a part (or the whole) of a larger ham. On the other hand, if the ham is very large, the muscle is liable to be tough.

Sliced ham should never be cut more than one-quarter of an inch thick—one-eighth of an inch is still better. It is not necessary to saw through the bone. With a sharp knife, cut clean to the bone and divide the slices in the center. The broiling or frying should be done over a hot fire, but it should not be sufficiently fierce to scorch the meat. It should always be eaten fresh cooked, as broiled or fried ham will speedily toughen.

To properly boil ham, first brush it off thoroughly to remove every particle of mold, soak for an hour in cold water, and then wash thoroughly. Next, with a very sharp knife, shave off the hardened surface from both the face and butt. Place over the fire in cold water in a covered receptacle, let it come to a moderate boil and keep it steadily at that point, allowing it to cook twenty minutes for each pound of meat, replenishing the supply of water as fast as it boils away. When cooked, remove the skin—it will easily peel off if it has been properly boiled—and dish with the fat side up. The service is improved by dredging black pepper in spots on the upside, sticking in a few whole cloves, and garnishing with parsley.

Some people enjoy the flavor obtained by adding a bottle of grape juice to the water in which the ham is boiled.

A roasted ham is merely a boiled ham nicely browned in a hot oven. It can be rendered more appetizing in appearance by spreading egg-moistened bread-crumbs or cracker-dust over the fat side before putting in the oven. The ham should rest in a pan with a wire bottom—or, if that is not possible, should be so blocked that the flesh does not rest on the pan.

See also SMOKED MEATS.

HARD TACK, or Ship Biscuits, or Pilot Bread, large, hard biscuits of plain, unsalted dough, kiln-dried. They are prepared principally for army and navy commissaries, but in some places there is a steady private demand for them, the broken biscuit being relished when added to soups and stews.

Similar "travel" breads are found in nearly every part of the world—varying of course in the details of component ingredients and in form—in ring shape, in saucer form (then often serving as a dish before being itself consumed!), etc.

HARE, the inclusive name for all of the *Leporidae* except the rabbits.

The hare is generally bigger than the (wild) rabbit, and has longer ears, hind legs, and feet, and a wider muzzle. The common European type averages larger than the American and has still longer ears, etc.

The chief American species is the prairie-hare, of the states west of the Mississippi, known in many sections as the "jack-rabbit." The young animal has always been a popular article of game food, eaten fresh, but the supply is not sufficiently regular to encourage commercial packing. The older animals are coarse and dry of flesh.

Like the rabbit, the prairie-hare multiplies rapidly and sometimes increases to such numbers as to be terribly destructive to growing crops.

The points given for the selection of rabbits apply equally to hares.

The *Belgian Hare* is a large variety of rabbit.

HAWS, the fruit of the hawthorn, known under various names and found in numerous species and varieties all over the world. The haws, or "apples," of several varieties are pleasing as a fresh fruit and make excellent preserves and jelly. They vary in shape from round to pear-style, in size up to an inch in diameter, and in flesh from juicy to mealy-dry. They are generally red or orange-red, but sometimes orange-brown and of other tints. The finest of all are of some varieties of the southern *flava*—small, egg-shaped, orange-brown fruits, dry and mealy, producing a jelly resembling guava in character and flavor. Almost equally good are the round, juicy, subacid "May," or "apple," haws, also of the South, of the *aestivalis*.

HAZELNUTS. See Filberts.

HEAD. The most generally desirable head for home cooking is that of the calf, but sheep's, lamb's, and pig's are also popular. With the exception of those from black sheep, they should be thick and whitish. Calves' heads are scalded to remove the hair; sheep's are skinned; and pigs' are scraped. The tongues are generally left in calves' and sheep's, but are frequently removed from pigs'. All kinds are usually frozen for shipment. They are cooked as separate meat dishes, or used in soupmaking. (See also Boar's Head.)

HEAD-CHEESE. See in the article on Sausages.

HEARTS. Beef heart is an economical and pleasing dish if properly prepared. In purchasing, see that the fat around the top is clear and lively in appearance. Calf's heart is smaller but more tender and delicate. Both beef and calves' are generally sold split. Lamb's heart is commonly sold with the lights. Sheep's and pigs' are chiefly utilized in sausage manufacture. A large number of pigs' are also used in fish hatcheries.

HERBS. A great diversity of plants belong under this heading and their uses are numerous—(1) as vegetables, (2) for flavoring soups, sauces, and pickles, and as garnishes, (3) to make herb or medicinal teas.

Those used principally as vegetables are frequently termed *Pot-herbs,* or are designated by the still wider title of greens.

Those employed chiefly for flavoring purposes are generally known as *Sweet herbs.* Among the most popular kinds are basil, bay-leaf, chervil, dill, marjoram, mint, parsley, sage, savory, tarragon, and thyme. All of these, and a number of others of less common use, are described in their alphabetical positions. A "bouquet," or "faggot," of herbs is a bunch tied together for ready sale.

Dried herbs should be kept in a dry place, for they readily absorb moisture and become moldy.

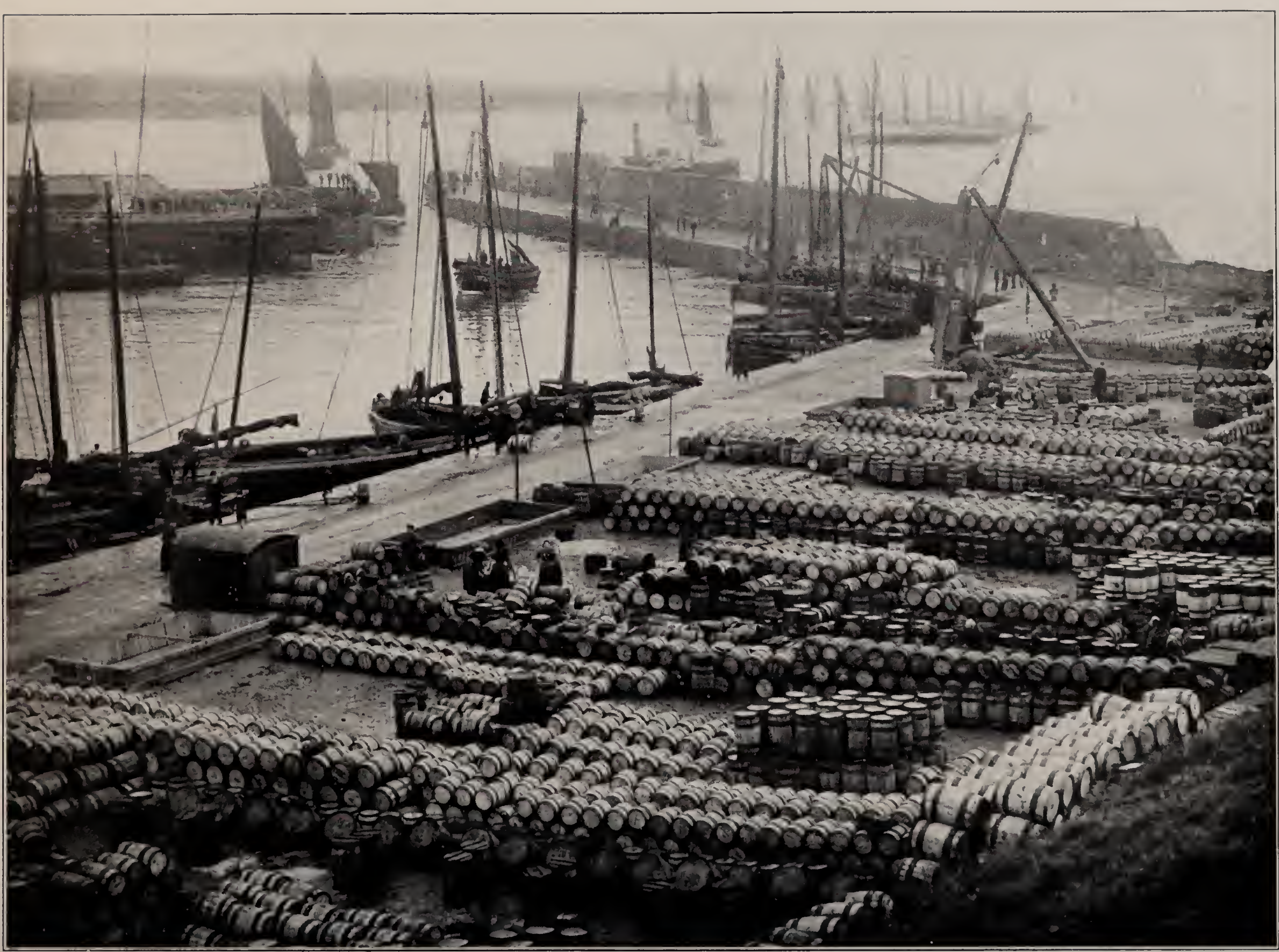
HERRING (see the color-page facing 294). Of the many species of herring, the chief are the *Clupea harengus* of both sides of the North Atlantic, and the almost identical *pallasii* of the Pacific Coast. Our principal fisheries are located along New England.

The fish, of an average size of eleven to fourteen inches, are usually caught by gill-nets or brush-weirs, or in scoop nets. The yearly harvest amounts to hundreds of millions. They are consumed in many forms—fresh, pickled, and smoked. The young also become "sardines," and those still smaller constitute the bulk of the catch of the famous English "whitebait."

The great quantity of food thus represented is of vital importance to a large proportion of the population of northern Europe, and the catching and curing of the fish furnish employment for thousands. Our domestic catch—a great deal less than that of Europe and of comparatively minor national importance—is supplemented by the annual importation of from sixty to seventy (or more) million pounds of the cured product, chiefly from Canada, Newfoundland, and Labrador, with lesser quantities from Great Britain and Ireland, the Netherlands, and Scandinavia.

When fresh-caught and promptly cooked by boiling or broiling, herrings are both wholesome and agreeable for consumption fresh, but the principal demand here is for the smoked or pickled fish, as the fresh herring if fried, or if kept long, becomes strong and oily and is apt to offend the stomach. The best grades of the cured fish are on the other hand highly esteemed as a relish, and salted herring is credited with diuretic

An instantaneous photograph of a few members of a "school" of herrings



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Thousands of kegs of herring, ready to ship, Aberdeen, Scotland properties by some physicians—perhaps because of the free quaffing of water or other liquids which generally follows its consumption.

Bismarck herring is the whole fish put up in a pickle flavored with spices, pieces of red pepper, onions, etc.

Bloaters (which see) are half-cured whole herring.

Boneless herring, other than that in cans or jars, is the dry-cured fish ready prepared for the broiler.

Kippered herring is the fish split, salted, dried, and smoked.

Milchner herring is the pickled soft-roe fish, the roe being converted into a sauce by rubbing through a sieve.

Red herring is a whole English herring salted and smoked. The title is of English origin, distinguishing the smoked fish from the "white" herring, preserved by salting only.

Soused herring is another title for *Pickled herring.*

More fancy kinds include *"Delicatess,"* or *Filet* (filleted), *herring* in wine sauce or in oil; *Roll Mopse* (pickled rolled fillets); small fish in tomato sauce, etc.

HICKORY-NUTS (see the second color-page facing 346). The hickory-nut is closely allied to the walnut. There are many varieties but, with few exceptions, all those of noteworthy food value can be classified under the names of Pecans, Shagbarks (*Carya ovata*), and Shellbarks (*C. laciniosa*). Shagbarks are also known locally as "little shellbarks" and "white hickory"; and Shellbarks as "big," or "bottom," shellbarks, and "big shagbarks," "king nuts," and "western hickory." The "shagbark" and "shellbark" titles record the peeling, or shelling off, of the bark of the old trees in broad, shaggy strips. The true "shellbark" strips are narrower than the "shagbark."

Pecans are marketed under their own distinctive title and are so treated in this volume.

The other two species are the standard "hickory-nuts" of everyday consumption. The shagbarks are considered the more desirable, the shell being thinner and the meat whiter, and (generally) of better flavor. Some of the shellbarks are, though, excellent in quality and very large—frequently to a length of two inches.

One occasionally comes across a tree of the Pignut hickory (*C. glabra*) which yields sweet, good-flavored nuts of thin, or only medium-thick, shells, but as a rule the pignuts are greatly inferior to the shagbarks and shellbarks, and they are seldom marketed.

The tree, found only in North America, is tall, handsome, and symmetrical in typical varieties of all the four species cited.

HOARHOUND, or Horehound. The genuine hoarhound of the candy-store and of cough sirups derives its flavor from the Common, or "white," species of the hoarhound, native to the south of Europe and Oriental countries, now found wild or cultivated in many parts of the world. It is a bushy plant about a foot high, with thick stems and branches covered with whitish, or "hoary," felt, and round, or ovate, wrinkled leaves, pale green and downy above and woolly and white underneath, which contain a bitter principle and a volatile oil of aromatic but not very agreeable smell. The leaves, together with the tops, are gathered for maceration and distillation just before the plant commences to flower.

HOE CAKE. See Corn Bread.

HOKEY-POKEY. (1) A term applied to mixed colors and flavors of ice cream in cake forms. (2) An inferior grade of ice cream sold by peddlers. The title is derived from the Italian *O che poco!* "Oh, how little!"

HOMINY, or Granulated Hominy, or Grits, white Indian-corn kernels with the rough, fibrous part and the germ removed, broken into particles of uniform size. It is similar to granulated cornmeal, but considerably coarser. An exception is *lye hominy,* which is the whole hulled grain (hulled by lye immersion).

A grade of grits, somewhat lower than that handled by the grocery trade for table purposes, is used in large quantities by brewers.

Pearl hominy is a larger size hominy—it may be whole grain, hulled by machinery. It is also known as *Samp, Coarse hominy,* and *Coarse grits.*

Hominy is prepared for use by boiling with water or milk. The larger sizes are eaten as a dinner vegetable, the finer product as a breakfast dish. When boiling for frying, always add some flour just before finishing as that will prevent it from breaking and splitting when fried.

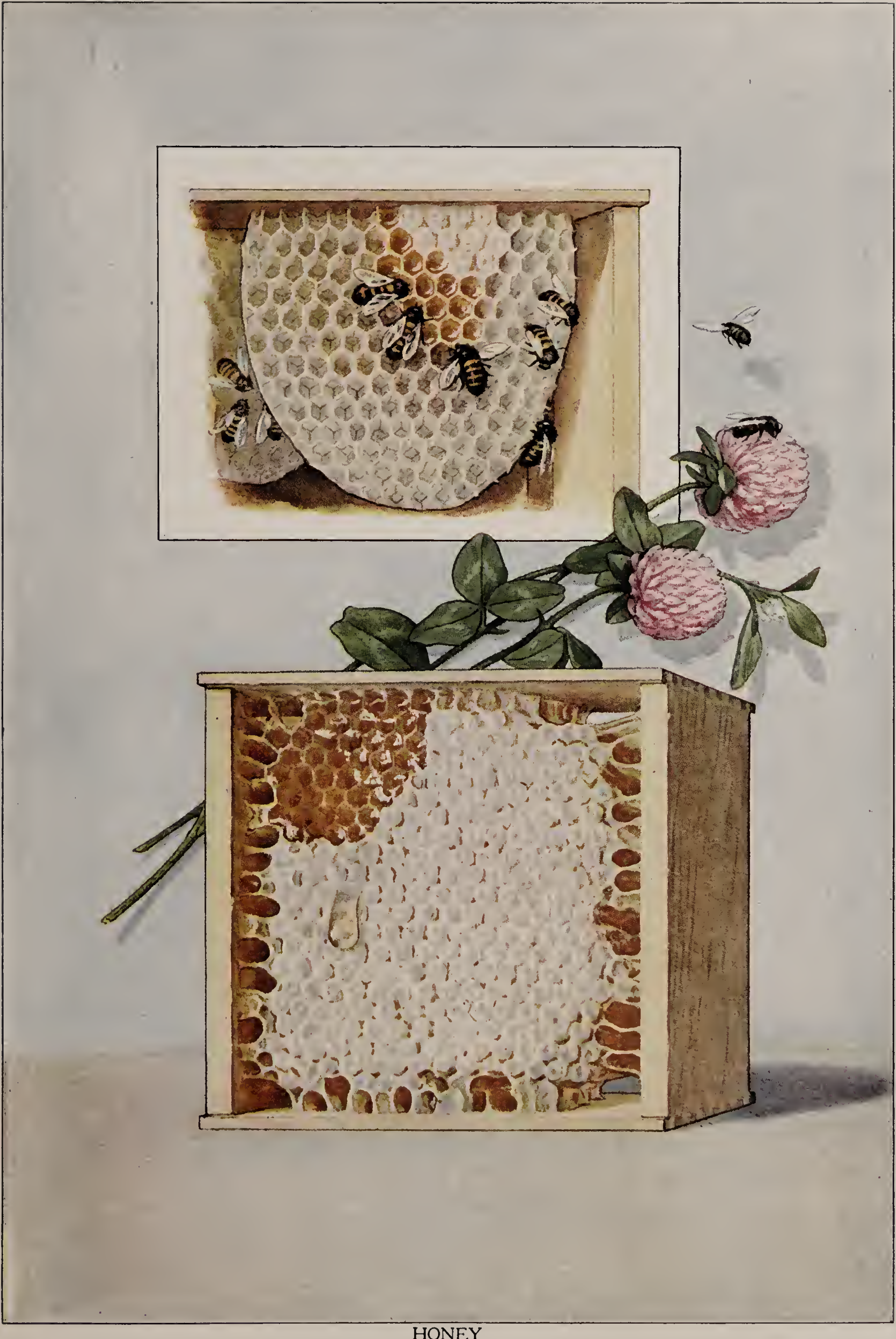
Taking a swarm of bees from a tree

HONEY, the sweet liquid secreted in the nectaries of flowers, sucked up by the proboscides of working-bees, modified in the honey-sacs of the bees, and further modified and condensed by evaporation in the cells of the combs into which it is disgorged as a food supply for the colony.

A colony, or hive, of fifty to seventy-five thousand bees will produce an average of about a pound of honey daily during the main season, the quantity fluctuating from a few ounces to two or three pounds a day at the height of the flow—the unevaporated nectar brought in bulking three times those amounts. A pound of honey represents the nectar gathered from two or more million flowers. Dwell for a moment on a mental picture of the fifteen or twenty million bee colonies in the United States, and then grope for a figure big enough to tell the total number of blossoms visited and fertilized every year with the pollen which the bees unwittingly distribute during the busy hours of their hurried, ceaseless toil!

The surplus honey available to a competent beekeeper in a moderately good location averages about fifty pounds to the hive. In favorable locations, a good season will often yield from 200 to 300 pounds and occasionally up to 600 pounds.

If left to their own devices, the bees spend much of the first weeks of the main honey flow in making their combs. The apiarist avoids this waste of time by furnishing them with combs carefully saved from the preceding year. If his stock is insufficient—as in a big season



HONEY
¾ Diameter

—he supplies them with thin sheets of pure wax stamped to serve as "comb foundation." Building on this, the bees complete the cells much more quickly than if they had to start entirely afresh, and have just that much more time for the pursuit of honey gathering.

The "social life" of the honey-bee is a fascinating study, and the better understanding of it that apiarists have obtained in the last few decades has enabled them to correct many traditional errors and greatly improve the entire practise of bee-keeping.

The year's activities on a big ranch commence a few weeks before the probable date of the crop of flowers—whether clover or sage, etc.—which is to supply the main crop of honey. The colonies have passed through the winter and come into the spring, each with a queen-bee and a little army of working-bees. Working-bees are undeveloped females whose life duties under ordinary conditions are confined to waiting on the queen, looking after and feeding the young with either new or stored honey and pollen, and collecting new honey and pollen during blossom time. The queen-bee is preferably young—one developed and fertilized in the preceding late summer or fall—but she is quite often an older insect. If in the northern states, the bees have been quiescent for several months—sleeping much and stirring and eating little; if in warm regions, displaying most of the time intermittently, or almost continuously, a good deal of activity.

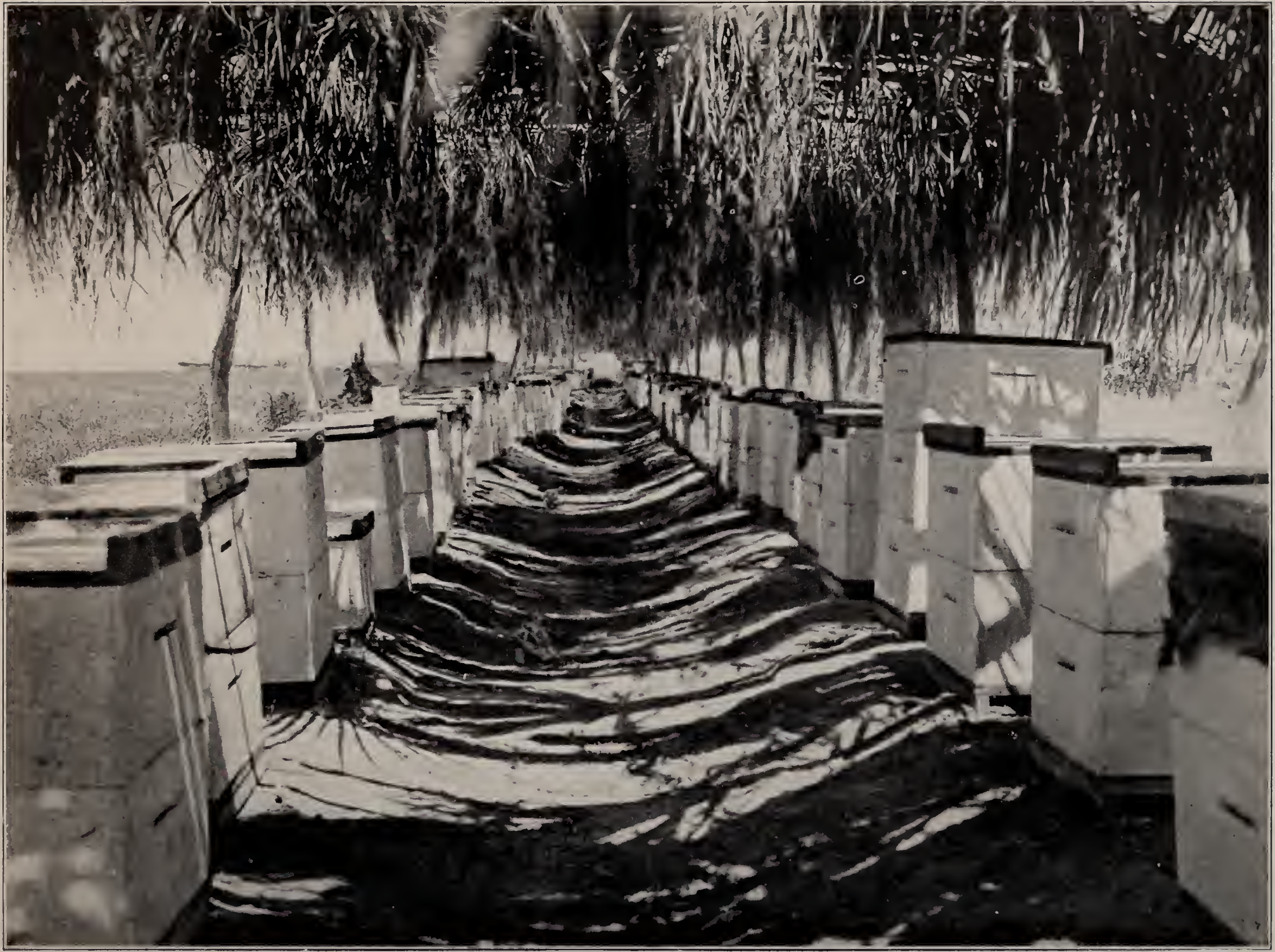
It now becomes the mission of the apiarist to help each colony to produce the largest possible number of new working-bees by the time that the flowers of the main crop commence to bloom.

The old conical hive is a thing of the past. In its place is an oblong hive, laid up in brood-chambers and supers, according to each season's and each colony's circumstances. For the breeding of the new generation of bees—upon which depend his profits and our honey supply—he provides for each colony a brood-chamber, or chambers, filled with combs, and he must see that the food supply—both of honey and pollen—is plentifully adequate for the hordes of larvae rapidly to follow the eggs that the queen lays in the cells. If the natural supply of honey is scanty, he must replenish it with some of his own, or with a proper sirup substitute. If pollen is lacking, he must furnish rye or oat or other suitable meal to take its place.

With both good management and good fortune he will have a fresh and rapidly increasing colony of workers in the hive ready to pour out into the fields when the flowers open. Honey now is his aim—no longer brooding—and he bars the queen from the supers that he sets above the brood-chambers to receive the honey that the workers will bring in and disgorge.

Comb honey is that straight from the hives—left in the cells just as the bees stored and sealed it. Specifically, it is generally understood as the honey thus stored in little squares of wood known as "sections" that the apiarist sets in the supers for the bees to fill—the bees thus not only making the honey we eat, but also putting it up in packages for us! The profitable production of perfect comb honey is subject to local limitations. In some parts, the honey has a tendency to granulate too quickly to be desirable. In others, its color is too dark or may be mottled. Comb honey production is recommended only when the honey is "white" and abundant and of the best flavor and consistence.

Extracted honey (90% of our consumption) is that extracted from the combs, generally by centrifugal process—the rapid revolving of the combs inside mesh-



Brown Bros.

An Arizona apiary

cylinders causing the honey to exude. If it has been allowed to ripen sufficiently in the hives, or is properly evaporated after separation, extracted honey compares favorably in flavor and quality with comb honey.

Comb and the better grades of Extracted are sold for table use. Dark and inferior products are used by bakers, confectioners, biscuit-makers, and druggists. Hundreds of tons are annually engulfed in the manufacture of sweet biscuits because of honey's peculiar quality of keeping them and similar articles fresh and moist (see also LEBKUCHEN). These cheaper grades can be advantageously employed in the household in many culinary ways—especially in cakes and puddings.

Honey has been enjoyed as food from the remotest times, and (in moderation) it agrees well with the average digestion. Its consumption should be regulated primarily by consideration of its high sugar content—which consists of from 62% to 80% of invert-sugar (dextrose and levulose) and, generally, some sucrose, the composition varying with the food of the bees, their age, and the season. The range of sucrose (which corresponds to "ordinary" sugar) is from none at all to 8%.

Honey was formerly adulterated to a considerable extent by the addition of commercial invert-sugar and corn-sirup, but the presence of either of these adulterants is easily ascertained on analysis, and the enforcement of federal and state food laws has practically eliminated the fraud.

In olden days, before sugar had reached Europe except as a medicine, and later when it was too expensive for—or was forbidden to—children, it is pleasing to note that honey was considered good for them!

The flavors of honey before blending vary as much as, or more than, those of fruits. Mountain sage is very mild; chinkapin is so strong as to be almost biting to the palate; basswood has a pronounced mint taste; white clover is milder than basswood and stronger than mountain sage; alfalfa resembles white clover, with usually a slight mint flavor. The wild honey of Cuba and Mexico is highly aromatic.

The comparative merits of these different flavors is largely a matter of individual taste. In the East, to describe any honey as "equal to white clover" is to style it as equal to the very finest, yet many judges and all western consumers consider alfalfa superior to white clover.

Other points for judgment are color and density. In this country, light colored, or "white," honey is generally considered the best, but the rule does not hold good everywhere, for the famous Scotch "heather honey" is as dark as our buckwheat honey—which has the color of molasses and which (except in some parts of the state of New York) is generally rated as inferior.

The greater part of our supply comes from the West—especially from the irrigated regions—and is drawn from alfalfa, sweet clover, and white clover. That of the East is from both the pink alsike (or "Swedish clover") and white clover.

Southern California honey comes chiefly from sage, orange, and bean blossoms; further North it is principally of sage and alfalfa. Texas furnishes large quantities of mesquit, guajilla (pronounced *gwah-he-ia*), catclaw, and horsemint. The other southern states get their supply from a great variety of flowers—those of clovers, poplar, tupelo, black gum, etc.

England, and northern Europe generally, produce a honey similar to the Scotch heather, but of lesser quality. Rosemary honey is very popular in southern Europe. Narbonne honey, from the vicinity of Narbonne, France, is similar to our white clover. The famed honey of Mt. Hymettus, Greece, is from wild thyme.

Honey should always be stored where it is dry and warm—almost hot. Where salt will keep dry, honey is safe. It will not be too warm with the temperature at 100° Fahr. There is no better place for storing it than a dry, warm garret next to the roof. It can, however, without damage be kept in a cold place for a few hours before serving. This will give it a thick, soft, cool texture that is especially pleasing to many palates.

A cellar is one of the worst of storage places. There are few cellars in which the air is not somewhat damp, and honey absorbs moisture very readily. Extracted honey will become thin and will often ferment. Comb honey will lose all of its beauty—the white surface darkens, and water gathers and runs on the cappings.

Candied honey. If honey, particularly extracted honey, is kept for a considerable length of time—or even for a short time under conditions of alternate freezing and thawing—it is apt to change from its original liquid or semi-liquid consistence to a semi-granular condition, and next to solidity. It is then called "granulated," or "candied," and the flavor is somewhat changed. Some people prefer it in this condition—using it as a natural sweetener or eating it as a confection of the same class as maple-sugar—but it is not, as a rule, so readily saleable. It can be restored to its original condition by setting the jar or glass in a saucepan of water and gradually raising the temperature to a moderate heat, maintaining the temperature as long as necessary. Boiling the water must be avoided—or even a temperature near boiling—as that is liable to spoil the color of the honey and dissipate much of its delicate flavor and aroma.

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Hop-growing in Oregon

HOP, the fruit of a climbing plant found wild in America, Europe, and Asia. It has been cultivated in France and Germany since at least as early as the eighth century and is now also an important crop in the United States, the chief producing sections being New York and the Pacific Coast states. It is famous for the property of its strobiles, or scaly multiple fruits, in retarding bacterial action in malt beverages, while also imparting an agreeably bitter taste. Their essential principle is the yellowish powder, *lupulin,* covering the ovary and the bract bases. This is used medicinally as a stomachic tonic, and as a sedative and mild hypnotic. Hop poultices have reputation as a household remedy for many pains and inflammations, and hop pillows are credited with the ability to produce sleep.

In Belgium generally, and in England and Germany to a small extent, the young hop shoots are eaten like asparagus.

The roots of the vine are perennial, the top only dying in the winter. The vines, which twine with the sun, from right to left, are now generally trained on drop-

Drying hops, Germany

wires or strings, or on wire trelliswork, the old-style poles being employed in comparatively few places. The strobiles are harvested in the latter part of August and the beginning of September. They are cured and kiln-dried and then baled.

In the choice of hops, care should be taken to select those which are full of lupulin, free from mold, and bright and silky in appearance; that are the most powerfully odorous, and the most free from leaves, stems, scaly fragments, and sticks; and which, when rubbed between the hands, impart in the greatest degree a yellowish tint and glutinous feeling to the skin. It is best also to select those which are tightly packed, as they soon spoil in keeping unless so firmly pressed together as to be, to a considerable degree, impervious to the air.

HOREHOUND. See Hoarhound.

HORSE-MACKEREL, a title applied to many large fishes. On the Atlantic coast it includes the Tuna (which see); and on the Pacific the Saurel. Among others of importance is *Carangus hippos,* also known as "cavally" and "jack," of American tropical waters—sometimes found as far north as Cape Cod. It is brownish-green above with gold-tinted sides and under-parts.

HORSE-MEAT. In Europe, especially in France, horse-meat has long been an accepted article of the human diet, the bulk of the supply consisting of lightweight or otherwise undesirable animals, both of domestic growth and imported from South America. It has also been sold—in steak form, sausage, etc.—in the larger cities of the United States. There are many arguments—economic and hygienic — in favor of hippophagy, or the consumption of horseflesh—but the idea is repulsive to the general sentiment of the people of this country.

HORSERADISH, a plant naturalized in many temperate countries. It is grown for the white flesh of its very pungent root, half an inch to two inches in diameter and a foot or more in length, which is generally grated and mixed with vinegar for use as a condiment with oysters, meat, etc.

Horseradish

Grated horseradish is best when freshest—if exposed to heat and air, it rapidly loses its pungent characteristics. Jars and bottles in which it is put up should be hermetically sealed and kept in a cool, dark place. When used without vinegar, it is best grated just before serving.

Horseradish sauce is made by placing the sliced root in a bottle or similar receptacle and covering with alcohol. The sauce can be used without any other addition than a little fresh mustard and a little red pepper, or may be added drop by drop to any white sauce until the desired flavor is obtained.

Horseradish powder is prepared by grinding the grated root, and drying by gentle heat or exposure to a current of dry air. When grinding the root, it is advisable to use a meat-chopper in order to save the eyes!

Horseradish vinegar is the grated root, together with a small quantity of shallots, onions, or garlic, red pepper, etc., steeped for a week or so in vinegar, and then strained and bottled.

The roots are both easily grown and easily cared for. They may be left in the ground over winter and dug as needed. When dug, they may be kept fresh for some time by burying in cool sand. They should not be left exposed to the sun and air.

An excellent winter salad may be obtained by sprouting the roots. If they are dug in the late autumn, the crowns being left intact, and then buried upright in moist, but not wet, earth in a dark, warm cellar, the leaves will grow white and tender and of a sweet pungency. They should be cut when about three or four inches long and may be used singly or mixed with other plant salads. Darkness during growth is essential, as exposure to the light causes the leaves to become green and tough and sufficiently over-strong in flavor to be objectionable to many people.

The poisonous aconite root has been mistaken for that of the horseradish. Yet there are several dissimilarities. The aconite root is tapering; the horseradish is not—being instead roughly cylindrical below the crown, with branching roots at the base. The aconite root is dark colored; the horseradish is whitish. Scraped aconite root becomes pink; scraped horseradish remains white.

HUCKLEBERRIES. The huckleberry, blueberry, bilberry, and cranberry constitute the principal members of a large group of closely related edible berries. The Cranberry (which see) is easily and naturally distinguished by its red color, but the titles of Huckleberry, Blueberry, and Bilberry are variously and contradictorily employed in different localities. By New England custom, those of bluish color are popularly known as blueberries; those black or nearly so, as huckleberries. West and south of New England, the general tendency is to group all varieties under the common name of huckleberry, in spite of the fact that the market supply is chiefly of blueberries. Botanically, blueberries and bilberries (as also cranberries) are now ascribed to the *Vaccinium* genus and huckleberries to *Gaylussacia*. Physically, blueberries and bilberries are generally sweeter, milder, and larger than huckleberries, and the seeds, though more numerous, are so much smaller as to be scarcely noticeable in eating. They are also generally a decided blue in comparison with the black Common huckleberry (*G. baccata,* or *resinosa*) but the color distinction is not absolute because of the bluish tint of the Blue huckleberry, or dangleberry (*G. frondosa*),

Blueberries

and the nearly black hue of a few kinds of blueberries. The name "whortleberry" is in the United States applied to the huckleberry, and in Europe to the bilberry.

The High Bush huckleberry

The numerous varieties of huckleberries, blueberries, and bilberries range in size from that of a currant to a small grape, and ripen from the first days of June to the last week of August, remaining in the market until about the middle of September. They are picked in prodigious quantities for use fresh as an edible fruit and (both fresh and canned) for pies and puddings. In southeast Maine, large areas are covered with the bushes. Cultivation is at present resorted to in only a few parts, as the wild bushes generally supply enough to meet the demand, but it is probable that the future will see greater attention directed to the improvement of these berries by selection and crossing, and to yet more extensive production.

The first to ripen in the North is the *Low, or dwarf, blueberry* (*V. pennsylvanicum*), borne by a small shrub from six to fifteen inches in height, which grows and bears abundantly on the sand barrens and hills of Pennsylvania and elsewhere in the northeastern states. The fruit is also known as "sugarberry" and as "huckleberry," with any one of numerous qualifications, as blue, blue sweet, early, early blue, early sweet, low sweet, and sugar. It has a bluish coat, which looks as though dusted with flour.

Next come the Low blueberry, or "blue huckleberry" (*V. vacillans*), the Canada blueberry (*V. canadense*), and the Dwarf bilberry (*V. cespitosum*).

The Low blueberry (*V. vacillans*) grows on dry sandy ground of the North-east, especially west of the Alleghanies. The bush resembles that of the Low, or dwarf, blueberry (*V. pennsylvanicum*), except that the plant is more erect and averages taller. The fruit is large, blue, and covered with bloom.

The Canada blueberry, found in the Pennsylvania mountains and regions further north, is a shrub from one to two feet in height, bearing round or oblate blue berries, covered with bloom and pleasing in flavor, but more acid than that of other low-bush forms. The bush is also known locally as the "velvet-leaf" and "sour-top."

The Dwarf bilberry, found in northern Maine and Canada, and several central and western states, is a small shrub from two to twelve inches in height, with large, sweet, blue berries covered with bloom.

The latest in the market are the fruits of the High Bush blueberry, or "swamp blueberry," or "swamp huckleberry" (*V. corymbosum*) of the northeastern states and the closely allied High Bush huckleberry of the Carolinas and elsewhere in the South. The bushes are tall—from four to twelve feet in height—and spreading in growth. The fruit of the High Bush blueberry is dark purplish; that of the High Bush huckleberry is nearly black.

The crop is generally gathered with rakes similar to those frequently used in cranberry picking, a skillful "hand" sometimes collecting more than fifteen bushels in a day. Both men and women are employed for the work. The berries are afterwards winnowed in a machine which blows out the unavoidable proportion of sticks, leaves, and defective fruits.

The poorer fruits are in some parts colloquially styled "crackers," because their tough skins crackle when eaten. The term is also applied to the true huckleberry because the bony covering of the seed crackles between the teeth.

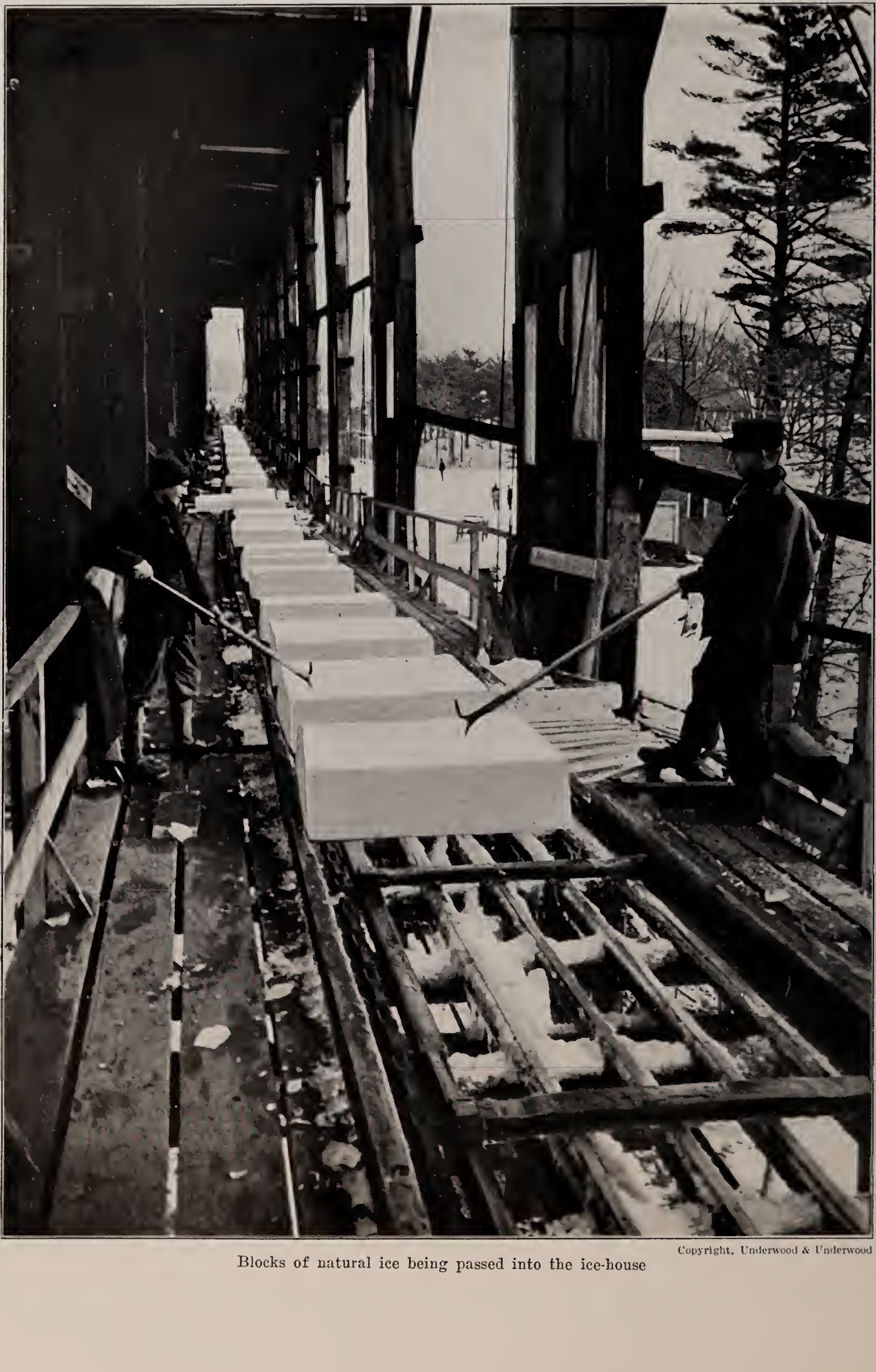
A sprig of blueberries is shown on the color-page opposite 42.

HYSSOP, a small, bushy herb of strong odor and pungent flavor. Its young green parts are sometimes mixed in salads or boiled as a vegetable, and the pulverized, dried flowers employed to flavor soups. The dried flower-spikes, cut just before opening, are used in "hyssop tea" and in home-made cough sirups.

ICE, REFRIGERATION, AND COLD STORAGE. Ice has long been artificially produced in India by the evaporation of water, and natural ice and snow have from a very early date been stored for summer use or have been carried down from mountain tops to serve lower-lying, warmer regions, but the modern industry of ice manufacture and refrigeration was born so recently as the middle of the nineteenth century. Its growth has been rapid—to-day there are in the United States alone 3000 or more plants engaged in the production of ice for general sale, in addition to the very large number employed in various industries—especially in the cold-storage preservation of foods.

The cold storage system, first attempted about 1860, has grown to extraordinary proportions. It has revolutionized the meat supply and extended the fruit seasons. It has rendered possible an uniform distribution of fresh foods throughout widely diversified regions and has carried the surplus of the Americas, Asia, Australasia, and other countries, to the markets of Europe. Together with the canning industry, it has remedied immense waste which was formerly unavoidable. It includes within our own borders a transcontinental chain of big storage houses, and refrigerator cars running from ocean to ocean, and employs great steamers especially equipped for transoceanic transportation.

As would be expected, the effect of cold storage on different foods varies considerably. Meat, one of the most important articles thus cared for, is also, happily,



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Blocks of natural ice being passed into the ice-house one of the best suited for it. Frozen meat will remain wholesome for years—almost indefinitely. It will lose some of its flavor after the first few weeks but otherwise there is no perceptible depreciation in food value. Fish, also, properly frozen, can be held in prime condition for a year or longer. Poultry loses in palatability, but if hard frozen it may show fairly good quality up to ten or twelve months. Held at higher temperatures, eggs may be kept for nine months or so, and potatoes for six. Fruits, on the other hand, owe so much of their desirability to volatile flavors that they are not generally suitable for longer holding than is necessary for their distribution. Some apples and pears improve for a while, becoming appreciably sweeter, but it is another story with most of the others—strawberries and peaches, for example, rapidly losing their merit.

The most important ice-making and refrigerating methods of present use are the Compression and Absorption, the former being that chiefly employed.

In the *Compression* system, anhydrous ammonia (ammonia gas) is condensed by pressure and then reduced to a liquid by chilling in a cooled "coil" of pipes. The liquid is released into another coil, known as the "expansion pipes." This step effects refrigeration, for the liquid re-evaporates in them—and the re-forming gas absorbs the (comparative) heat of the surroundings—converting water into ice, or reducing the temperature in cooling-rooms, or being otherwise variously utilized. The expanded gas goes back to the compressor to be continuously used over and over again.

By the *Absorption* method, a water solution of ammonia is similarly employed as the fundamental agent.

The use of the expansion pipes (of either method) may be either direct as noted above (by close or complete contact with the water or atmosphere to be frozen or chilled), or indirect by their action on strong brine or on air-coils, these then to be employed as the immediate agents. The brine may be made with common salt, but is preferably of calcium chloride.

Artificial Ice. The principal forms of manufactured ice—and the only styles of commercial distribution—are Can and Plate.

Can ice is obtained by setting cans of water in brine-tanks refrigerated by expansion pipes. It is generally good in quality but has a tendency to be soft in the center. The water is carefully purified before running into the cans, as any foreign matter present is forced to the center during the freezing and will show as a core in the upper center of the block. Also to be avoided is an excess of air bubbles, which will render it porous.

Plate ice is made in oblong tanks in which the water is agitated by air-jets to remove the air particles and assist the freezing action to drive the impurities to the center, which remains uncongealed and is later run off. The sides of the tanks consist of iron plates set on both sides of expansion coils. The ice

Marking ice for cutting

Sawing ice

of importance in international commerce. During the first part of the nineteenth century, ice from Wenham Lake (twenty miles or so north of Boston) was shipped all over the world—to South America, to England, to India. Big ice-houses in Liverpool and London annually received and distributed thousands of tons.

Impure Ice. It is incumbent upon municipalities and individuals to protect themselves against the sale of ice, whether natural or artificial, produced from contaminated water. Under certain conditions it may prove actively unwholesome. The increase in population and the growth of manufacturing industries has so extended the pollution of lakes and rivers, that in the larger towns and cities the consumption of local natural ice is often fraught with considerable danger. The use of artificial ice from water which has undergone thorough preliminary purification is then the only safe recourse, unless ice from unpolluted sources can be profitably imported.

forms on these plates—hence its name. As removed from the tanks, it is obtained in blocks, generally about twenty feet long, ten feet wide, and one foot thick, weighing six to seven tons.

Artificial ice was formerly soft and consequently of poor keeping quality, but the present standard product is both hard and lasting.

Natural Ice varies with conditions of water and weather, from opaque and somewhat soft from the air enclosed to an excellent crop, clear and hard.

In bygone days, before the advent of refrigerating machinery, natural ice was

"Floating in" the cut ice

Refrigerators. The refrigerator of the ordinary household, of small commercial establishments, and of ice-charged railway-cars, etc., operates by the facilities given for the circulation of air alternately chilled (and falling) from contact with the ice, and warmed (and rising) from the higher temperature of the storage-chambers. From 36° to 38° Fahr. is the lowest obtainable from ice alone, but a freezing temperature may be secured by mixing salt with it.

Good insulation in the construction of refrigerators and cooling-rooms is essential for economy and efficiency. Also, an ice-chamber kept filled is, in the long run, more economical than the ice-chamber that is nearly empty much of the time.

ICE CREAM. The making of "ice cream" originated in Italy about 1600 A.D.—perhaps earlier—and spread thence to France, and through France to England. From England the knowledge of the new delicacy crossed to her American colonies early in the eighteenth century.

It is popularly thought that the present wide diversity of "ices" and "ice creams" is a modern development. On the contrary, a much greater variety of ingredients distinguished their first manufacture. The novelty was in the process of freezing, not in the composition of the mixtures so treated—freezing being merely applied to scores of already popular beverages and dessert dishes—the latter being multifarious blends of cream, ground nuts, fruits, chocolate, spices, wine, etc. As many of these desserts had previously been chilled by contact with ice or snow, the transition to ice cream was an easy step.

The theory that ice cream should consist only of flavored, sweetened, iced cream of milk is of modern origin. The earlier significance of the word "cream" as thus employed had rather the meaning of our "custard" — custards and similar desserts being then better known as "creams," the usage surviving in such titles as "Bavarian cream," "prune cream," and "tapioca cream."

To-day the United States is the greatest consumer of ice cream in the world, the kinds enjoyed ranging from simple cream or thickened milk, sweetened and flavored, to those varied with eggs and mixed with fresh and preserved fruits, nuts, etc., and others in which egg whites are used to the exclusion of both milk or cream: some entirely raw; others, as "French ice cream" with a "cooked," or "custard," base: for the tastes, pocketbooks, and demands of the public vary widely. The use of cornstarch as a filler for simple or cheap kinds, though still common in the household, has become obsolete in commercial manufacture, condensed or dried milk taking its place.

The commercial manufacture of ice cream has become a great industry, the annual output of wholesale establishments alone exceeding 250,000,000 gallons. In these big plants, the former type of machine freezer (similar to the household freezer) has been superseded by self-charging and self-emptying freezing-apparatus in which mechanically refrigerated brine in sealed coils or chambers does the work of the open tub of ice and salt; mechanical mixers have taken the place of the open vats and kettles; and mechanically refrigerated dry cold-storage rooms have succeeded the old ice and salt pack for hardening the ice cream after it leaves the freezer.

For household purposes, JUNKET (which see) prepared from pure milk, mixed with whatever cream can be spared, is an excellent material for making into ice cream, giving a smooth, delicate product at minimum expense. The junket process renders the milk and cream more easily digestible while at the same time thickening and improving its body.

ICE-FISH. The fish best entitled to this name is the CAPLIN (which see). It is also applied to many other delicate-fleshed fishes of both salt and fresh waters—as the Lake Champlain ice-fish.

"ICELAND MOSS," a moss-like lichen gathered in Norway and Iceland. It is common also in countries further south.

In Iceland—to some extent under all conditions, and to a large extent when food is scarce—it is dried, ground into flour, and made into "bread," with or without blending with grain flour. The bread is palatable and helps to assuage hunger—it is useful also even during moderately prosperous times, as adding bulk to the diet of the poor. That proportion of it which consists of "moss" flour is, however, practically worthless as human food. The "moss" has long been held in repute as a nutritious food, chiefly because of its 70% or so of lichen-starch, but very little of this can be assimilated by the human digestion.

In other countries, the dried "moss" is used chiefly in decoction or in the jelly form which it readily yields. As the former, it furnishes a soothing drink for irritated throats and stomachs; as the latter it ranks in the same class with, and with the same uses as, Gelatin (which see). The bitter taste sometimes noticeable is removed by a preliminary cooking in hot water or by steeping in several waters before cooking.

ICING, for cake ornamentation and the "filling" of layer-cakes, consists of very fine sugar worked into a soft paste with egg-white or corn-sirup, and variously colored and flavored—as chocolate, lemon, maple, orange, pistachio, strawberry, or vanilla.

IMBU (*Spondias tuberosa*), a fruit that looks like a large, pale yellow plum, but whose soft, juicy pulp tastes a good deal like that of an orange, borne by a small Brazilian tree recently introduced here by the Bureau of Plant Industry. It is eaten raw and also made into jelly. The tree is remarkable for the large, round, cellular, blackish tubers attached to its roots (somewhat like giant potatoes). These carry the tree's reserve supply of water—a supply that has often been rifled by travelers digging up the tubers to quench their own thirst.

INDIAN BREAD-ROOT, or Pomme Blanche, or Prairie Turnip, the spindle-shaped root of a plant (*Psoralea esculenta*) native to the prairie regions of the Central West, and formerly an Indian food of considerable importance. It is ordinarily about the size of an average hen's egg, with a tough, dark brown skin enclosing a whitish meat which resembles the flesh of a chestnut in both appearance and flavor except that it is less sweet. The fresh root is eaten raw, or cooked in any way that is suitable for potatoes; or dried for winter use and then crushed, mixed with water, and baked in small cakes. Its cultivation was at one time proposed as a substitute for potatoes. The title "Indian bread-root" is also applied to the Coontie (which see).

INDIAN CRESS. See under the popular title of Nasturtium.

INDIAN CUCUMBER, the edible rootstock of a native perennial plant (*Medeola virginiana*) of the northern and central states, so named because its flavor somewhat remotely suggests the cucumber.

INDIAN FIG. See Prickly Pear.

INDIAN MEAL, ground Indian corn, or maize. See Cornmeal.

INVERT-SUGAR, a sirupy product which consists of a combination of Glucose and Levulose (which see). One of the most familiar natural forms is in honey, which contains from 62% to 80%. Ordinary sugar is changed into invert-sugar by the action of the intestinal juices, and may be converted into it by simple boiling. Commercially it is made by fermentative or acid hydrolysis.

IRISH MOSS, another title for the seaweed CARRAGHEEN (which see).

ISINGLASS, or Fish Gelatin, a tough, whitish, translucent substance, prepared from the air, or swim, bladder of the sturgeon, cod, and similar fishes. Russia, Brazil, and the United States furnish the bulk of the world's supply. It is employed in fining liquors and the manufacture of fish glue, and in the household in the preparation of jellies, blanc-mange, and similar desserts. Gelatin from animal tissue has, however, largely supplanted it in cookery on account of its considerably lower price (see GELATIN).

Japanese isinglass, or gelatin, is prepared from a seaweed (see AGAR-AGAR).

ITALIAN PASTE, another name for macaroni and similar pastes. See MACARONI.

JACK-FRUIT, the huge fruit of a very large tropical tree (*Artocarpus integrifolia*) of the same genus as the bread-fruit. It frequently reaches from forty to fifty pounds in weight and sometimes eighty or more of them may be seen suspended at a time from the trunk and larger branches of a single tree. The fruit is long and irregular in shape—with a granulated, greenish skin enclosing a mass of yellow pulp and, embedded in the pulp, a few seeds about the size of an average walnut. It is important as a native food—and is much relished by elephants (it is truly of a size becoming to them!)—but it is coarse and, to most white palates, unpleasant in flavor.

JAGGERY. See PALM-SUGAR.

JAM, a title generally applied to that class of sweet preserve in which either the whole fruit or its pulp is cooked without regard to the preservation of the shape of the fruit (see the general article on PRESERVES). If the rind shows as such, the "jam" commonly becomes MARMALADE (which also see).

The highest class jams contain no other ingredients than the fruits of their titles, refined sugar, and a little water. Those of relatively low price include also, as a rule, considerable proportions of apple juice or corn-sirup, or both. These compound jams lack the fine fruit flavor of high-class jams, but their manufacture furnishes people of moderate incomes with a plentiful supply of cheap, pleasing, sweet, and thoroughly wholesome "spreads."

Commercial apple-pectin (see reference in the article on JELLY) is, further, added to some otherwise unblended products for the single purpose of making them firmer.

Good jam, if eaten in moderate quantity and together with other appropriate articles, is an excellent food. It is high in carbohydrates and fruit-mineral value.

The fruits chiefly used for jam making are apples (including crab-apples), apricots, cranberries, currants, oranges, pears, plums, quinces, raspberries, and strawberries.

JAMAICA PEPPER, a name frequently applied to ALLSPICE (which see).

JAPANESE ARTICHOKE, or Chinese Artichoke, or Crown of Japan, a mint-style plant cultivated for its tubers, which are produced in considerable numbers, crowded together in root shape. The separated tubers are small, and inclined to shell formation, with a thin skin of whitish-brown or ivory-white. Their flesh (under proper cultivation) is white and tender—suitable for eating either raw or cooked—as a vegetable, in salad compositions, or as a garnish—particularly in the last-named manner. The plant has recently been grown here in a small way.

JAPANESE GELATIN, or Isinglass. See AGAR-AGAR.

JAPANESE MEDLAR. See LOQUAT.

JELLY, in its most important food significance, is the juice of fruits or meats, evaporated or thickened to a semi-solid consistence. Meat jellies thicken principally from the gelatin extracted from bones and connective tissues; fruit jellies from the combination of fruit pectin, fruit acids, and sugar.

All fruits can be made into jams or preserves, but only those containing a sufficiency of pectin are naturally suitable for jelly-making (see PECTIN).

The best fruit jellies—those of fruits rich in pectin—are nothing more nor less than cooked sweetened fruit juices; nothing being added but sugar. They are made by cooking the fruit in a small amount of water, expressing the juice, adding sugar to it, evaporating to the proper consistence, pouring into hot glasses, crocks, or pails, and sealing.

Those fruits which are deficient in pectin—as raspberries, strawberries, pineapples, and very ripe grapes—will not yield satisfactory jelly in this unaided manner. They require the addition of some solidifier—generally apple juice or commercial fruit-pectin—to give them the correct consistence without excessively long evaporation.

Apple-pectin is largely employed in commercial manufacture. It is usually in compound sirup form, its base obtained from the cold-pressed pomace of cider and vinegar mills or from the cores and peels of drying and canning establishments, etc.

The addition of fruit-pectin renders possible a delicate, wholesome jelly of any fruit or vegetable juice—a jelly true in flavor if both the juice and the pectin are of high quality.

"Pectin extract" can be prepared for home use from hard ripe apples, or from their skins and cores, or from the white inner peels of citrus fruits (oranges, lemons, and grapefruits), by concentrating the blended juices obtained by two or more cookings and pressings. It will commonly be less neutral in flavor and less powerful than commercial fruit-pectin, but it serves as a fair substitute.

Low-grade commercial jellies contain a minimum of the "character" juice and a relatively large proportion of sugar or corn-sirup, or both.

In imitation jellies, flavoring extracts or artificial colors are substituted for the juices.

JELLY POWDER, powdered gelatin, sweetened and artificially flavored and colored. The most popular flavors are chocolate, lemon, orange, raspberry, strawberry, and vanilla.

JERKED BEEF, beef in long, thin strips dried in the air, with or without having been previously immersed in brine. The original jerked beef was unsalted. The word "jerked" comes from the Spanish-American *charque-ar*.

JERUSALEM ARTICHOKE, or Topinambour, the tuber of a species of sunflower, native to North America, somewhat resembling the potato in general characteristics but sweetish in flavor and more watery. The name ''Jerusalem'' is a queer twist from the Italian word *girasole.* There are two principal types—one long and with red skin, the other round, knobby, and white. They are generally boiled and pickled or eaten with vinegar, or made into soup, but some people enjoy them raw, eating them with salt, like radishes.

Their food value is low, the large carbohydrate content being chiefly of inulin, which is only to a small degree convertible by the digestion.

JEWFISH, or California Jewfish, or "Black Sea-bass," a big, gamy fish (*Stereolepis gigas*) of southern California which sometimes approaches a weight of 500 pounds. The title ''jewfish'' is also applied to a number of other fishes—especially the ''spotted jewfish'' (*Promicrops itaiara*) of the tropics, a yet larger creature; the equally huge ''black jewfish,'' or ''black grouper'' (*Garrupa nigrita*) ; and the tarpon.

JOHNNY CAKE, or "Johnny cakes." See CORN BREAD.

JUJUBE, the fruit of the jujube shrub or tree, widely grown in China and other parts of Asia, and to a considerable extent also in Mediterranean countries. It varies in shape from roundish to oblong; in size (in cultivated varieties) up to—and beyond—that of an average prune; and in exterior color from orange-red to dark reddish-brown (occasionally as light as yellow and in some kinds a full black). It looks a good deal like a date, especially when preserved. The flesh, generally yellowish or brownish and enclosing a hard elongated stone, has, when fully ripe, a crisp texture like that of a crab-apple, a pleasing subacid flavor, and a sugar content up to 20%.

The chief value of the fruit is however in its next stage—the dried jujube—when it has shriveled and become spongy, growing darker and sweeter in the process. In this form it will keep for a long time. In China, the ripe fruits—both fresh and dried—are improved and preserved by boiling in sugar or honey sirup—sometimes in both in succession, and either whole or slit—and then sun or oven dried.

The jujube, in both European and Chinese varieties, is successfully cultivated in California and Florida, but it is doubtful if the industry will ever attain large commercial importance, as its possible field is well filled by the date and other dried sweet fruits firmly established in public popularity.

The ''jujube'' of the candy store consists generally of gum arabic or gelatin, flavored according to the whim of the manufacturer. It originally held the juice of the fruit as an ingredient, but now has no connection with it.

JULEP, a sweet drink variously prepared for different purposes — a medicated, mildly stimulating draught; a sirupy liquid to be used as a vehicle for medicine, etc. In this country, the word was long famous as signifying a beverage of whisky or brandy, sugar, cracked ice, and some flavor, generally mint. It came into our language from the Persian, its Eastern prototype signifying ''rose-water.''

JULIENNE, a term applied (1) to shredded potatoes, (2) to a garnish of vegetables such as carrots, turnips, cabbage, and celery, cut in thin strips, and (3) to clear soup, or consommé, containing chopped or shredded vegetables. Dried julienne for soups is retailed in packages. The name is from a famous chef, Jean Julien.

JUNE-BERRY, or Service-berry, or Sugar-pear, or Grape-pear, or Sugar-plum, the fruit of several species of the shad-bush, a shrub or small tree found in all sections of temperate North America. It is of miniature apple style, resembling the haw, and ranges from diminutive up to the size of a small crab-apple, and from dark red, or purple, to black. It is of peculiar interest in the West for it often formed the sole food of the Mormons and other pioneers in their days of hardships and privations. It is still an important part of the diet of the Indians of the Northwest, who value it both fresh and dried.

JUNIPER BERRIES, the aromatic, generally dark blue, fruits of the common juniper shrub or tree growing in numerous varieties on this continent and throughout much of the eastern hemisphere. They are too pungent for eating raw but they have various food uses. A nice flavor is given to corned beef, for example, by adding a muslin bagful of the crushed berries to the brine. In Europe they are largely employed to flavor gin, and in Germany small wood of the shrub is used for smoking hams.

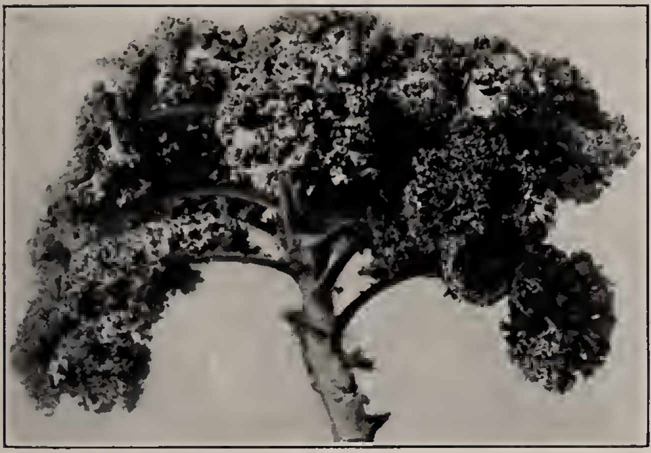
Oil of juniper, a powerful diuretic, is distilled from the unripe fruit.

Another species, *J. drupacea,* of southeastern Europe and western Asia, affords bluish-black berries edible as a fresh fruit. A third is the famous "red cedar."

JUNKET, sweet, luke-warm milk quickly curdled, or jellied, by the addition of a little rennet (dissolved junket tablets). Sweetened and flavored with vanilla, or dusted with cinnamon or nutmeg, or eaten with berries, fresh or preserved, it is a pleasing dessert. (See also reference in the article on ICE CREAM.) In England, especially in Cornwall and Devonshire, it is typically served with clotted cream and flavored with nutmeg.

KALE, or Borecole, a vegetable of the cabbage species, closely akin to the wild cabbage of Europe, with leaves free and open instead of forming a head as in the

The exquisite leaves of four varieties of striped and variegated kale



Emerald Isle kale

common cabbage. Its numerous types show a great diversity of leaf form—some are plain, others are waved or curled, many of them being beautifully patterned. Their color ranges from green to red-brown and purple.

Kale as usually sold is somewhat over-mature and therefore coarse. It has merit nevertheless as cheap and palatable winter greens, the plants being very hardy and their leaves improved by frost. Young, tender kale is an exceptionally delicate vegetable, but is seldom seen commercially.

KANGAROO TAILS. The flesh of the various members of the kangaroo group—the big grey kangaroo (as large as a sheep), the wallaby, and others—was formerly an important food among the natives of Australia, and hunting the larger animals is still a favorite sport of its white residents. Kangaroo-meat proper seldom reaches the United States, but there is a limited importation of canned kangaroo tails. When preparing for the table, first warm the can, then draw off the jelly and gravy and make it into a hot sauce, season, strain, add the pieces of tail and serve with croutons of fried bread. A tart, stiff jelly—as cranberry or currant—is a suitable accompaniment. The flesh resembles venison in flavor.

KANTEN. See Agar-agar.

KEI-APPLE, a large, fleshy, acid, South-African fruit which makes excellent pickles and preserves. It is borne by a spiny, evergreen hedge-shrub (*Aberia cuffra,* or *caffra*) which is being successfully cultivated in southern Florida and southern California.

KEPHIR. See the article on Kumiss.

KETCHUP, one of several styles of spelling Catchup (which see).

KIDNEYS—*Beef, Veal, Lamb, Pork.* A good kidney is light in color and firm to the touch. If dark red, it is less choice. If dark and soft, it is probably from an old or poorly fed animal. Veal kidney is the most delicate.

KILKIES. See under the title of Sprat.

KINGFISH. Many fishes bear this title. In American waters, those best entitled to it are sciænoids of the *Menticirrhus* genus, especially the Northern and Carolina "whitings" of the Atlantic coast, the California "whiting" of the Pacific, and the Surf, or Silver, "whiting" of the South Atlantic and Gulf. They average one to two pounds in weight, larger specimens attaining a length of fifteen inches. The northern variety is distinguished by darker, more pronounced stripes than its southern relation.

Much larger "kingfishes" are two scromboids of the genus which includes also the Spanish mackerel—the *Scomberomus regalis,* or "sierra," or "pintado," and *S. ca-*

valla, or "cero," or "cavally," both of them caught chiefly in Florida and West-Indian waters, and both of them first class game and food fishes. The average market size is about ten pounds, but big specimens measure five feet and more in length and (in the case of the "cero") reach 100 pounds in weight.

KIN-KAN, another name for the KUMQUAT (which see).

KIPPERED, applied to herring or salmon, signifies split, salted, dried, and smoked.

KIRSCHMUSS, a thick, unsweetened jelly made from the juice of sweet black cherries, in common use in Switzerland. It is eaten with sweet butter and bread.

KNACKEBROD. See subhead in the article on BREAD.

KOHLRABI, or Cabbage-turnip, a variety of cabbage with a turnip-like thickened stem, or "root," growing just above the ground. The leaves, when young and tender, are eaten as greens, but the "root" is the better part. It resembles turnip but (if well grown) is more delicate in grain. To be enjoyed at its best, it should be young and small—not more than two to three inches in diameter, and of an early, quickly matured type. It becomes tough with age and larger size, or if its growth is slow. It is best prepared for the table by cutting in one-half inch dice and cooking as for cauliflower, with or without the leaves.

International Press Photo Co.

Kola-nuts

KOLA-NUT, or Soudan Coffee, a brownish, bitter seed, or nut, about the size of a horse-chestnut when fully matured, growing in pods, bean-style, on a tropical-African tree naturalized in the West Indies and tropical South America. It is credited by the natives of Africa with conserving and promoting energy, and is gathered by them in immense quantities, both for their own use and for trading purposes. It contains from two to three times as much caffein as the coffee-bean and it is for this stimulating property that it is principally used commercially in extracts and tonic beverages. Medicinally, its preparations frequently do good service in stomach and intestinal disorders.

KOLCANNON. See CALECANNON.

KOSHER, or Kasher, MEAT, meat from an animal or bird that has been killed by a *shochet,* an expert meat inspector and butcher, in accordance with the rules of the Jewish Talmud.

A strictly kosher butcher must buy all his stock alive, the animals being generally killed in the slaughtering house by a shochet. Great care is taken to avoid exciting the animals, for their death must be as calm and as sudden as possible. Bullocks, calves, and sheep are killed by cutting their throats with a special knife, the blade of which is about twenty inches long and two inches wide and is kept as sharp and highly polished as a razor. The cut almost severs the head from the body and the carcass is allowed to bleed as freely and as long as it will—the object being to clear the flesh of blood, the consumption of removable blood being forbidden by the Jewish law. Chickens and geese are decapitated with a similar knife and are allowed to bleed in the same manner.

When the bleeding has ceased, the carcass is opened and a most minute examination of the lungs, entrails, etc., is made. The slightest defect will result in the shochet condemning the entire animal as *tref* (*terefah*)—unfit for food.

If the animal is pronounced "kosher," the meat undergoes the next operation of porging—the removal of all bloody veins and gristle. Because this operation involves a great deal of labor if applied to the hindquarters of bullocks and sheep, that part of the animal is in this country generally classed as "tref," even when the carcass in general is kosher, and is sold to Gentile butchers. The hindquarters of calves and lambs are retained and treated like the remainder of the carcass. It is because of these special precautions that kosher meat ordinarily commands prices higher than the average of retail markets. In the orthodox household the meat is further treated by soaking in water and then by the application of salt to complete the extraction of removable blood, this being followed by thorough washing.

Kosher corned beef is kosher beef prepared by, first, a thorough soaking in fresh water, next bedding for some time in dry salt, and then a second washing before immersion in the brine, where it must remain for twenty-four hours.

All fresh fish of the scaly variety may be eaten without the intervention of the shochet, but the ordinary salt and dried fish of commerce come under the ban because of the possibility that some matter not kosher may have been employed in preparing them.

Swine, hare, frogs, snails, and fishes without scales or fins (as eels) are among modern foods which come under the classification of tref.

The refusal of all meat that is not kosher is a matter of religious principle with the orthodox Hebrew. A practical advantage accruing to him is that the careful personal inspection by the shochet guarantees him flesh in absolutely healthy condition, protecting him against the diseases liable to result from the consumption of the flesh of unhealthy animals.

Applied to other foods, as "kosher bread" and "kosher butter," the term signifies special care and cleanliness in preparation and manufacture. The vessels and utensils used must not be employed for any other purpose and must be cleaned and inspected with great exactness.

KUMISS, or Kumyss, or Koumiss, a fermented milk which is distinguished by a double fermentation—a lactic acid and an alcoholic. It is a beverage of very ancient usage among the Tartars, made by them of either mare's or camel's milk and constituting an important part of their daily diet. The native formula calls for the addition to the fresh milk of a small quantity of the previous making and then frequent agitation during fermentation. Lactic acid fermentation sets in first. Twenty-four hours produces a moderately sour liquid with only traces of alcohol. About thirty-six hours gives the finished beverage—sour, effervescent, and very mildly alcoholic (from 1 to 2%)—a product particularly valuable in that it can be kept for a long time without deterioration.

The "kumiss" that we drink in America is a similar double fermentation of cow's milk—skimmed and sweetened to bring it to about the same composition as mare's—and fermented by means of lactic acid and yeast cultures. It is a beverage both refreshing and nourishing, much liked by many people of the most robust health and valuable also in the sick room, the casein being finely divided and some of it converted into very easily soluble products. It is most palatable if poured a few times from glass to glass when drawn from the bottle—this producing a thick, creamy consistence.

Cow's milk must be skimmed for kumiss manufacture — otherwise butyric acid (a stomach irritant) may be developed from its larger fat content; and sugar, or its sirup, must be added to provide sufficient food for the alcoholic fermentation.

Fermented milk of this character similarly manufactured in England is known also as "kephir," taking its name from a Caucasian preparation of cow's milk (or to a less extent of that of goat's or sheep's) fermented with "kephir grains," a mixture of fungi and bacteria, which resemble pieces of cauliflower.

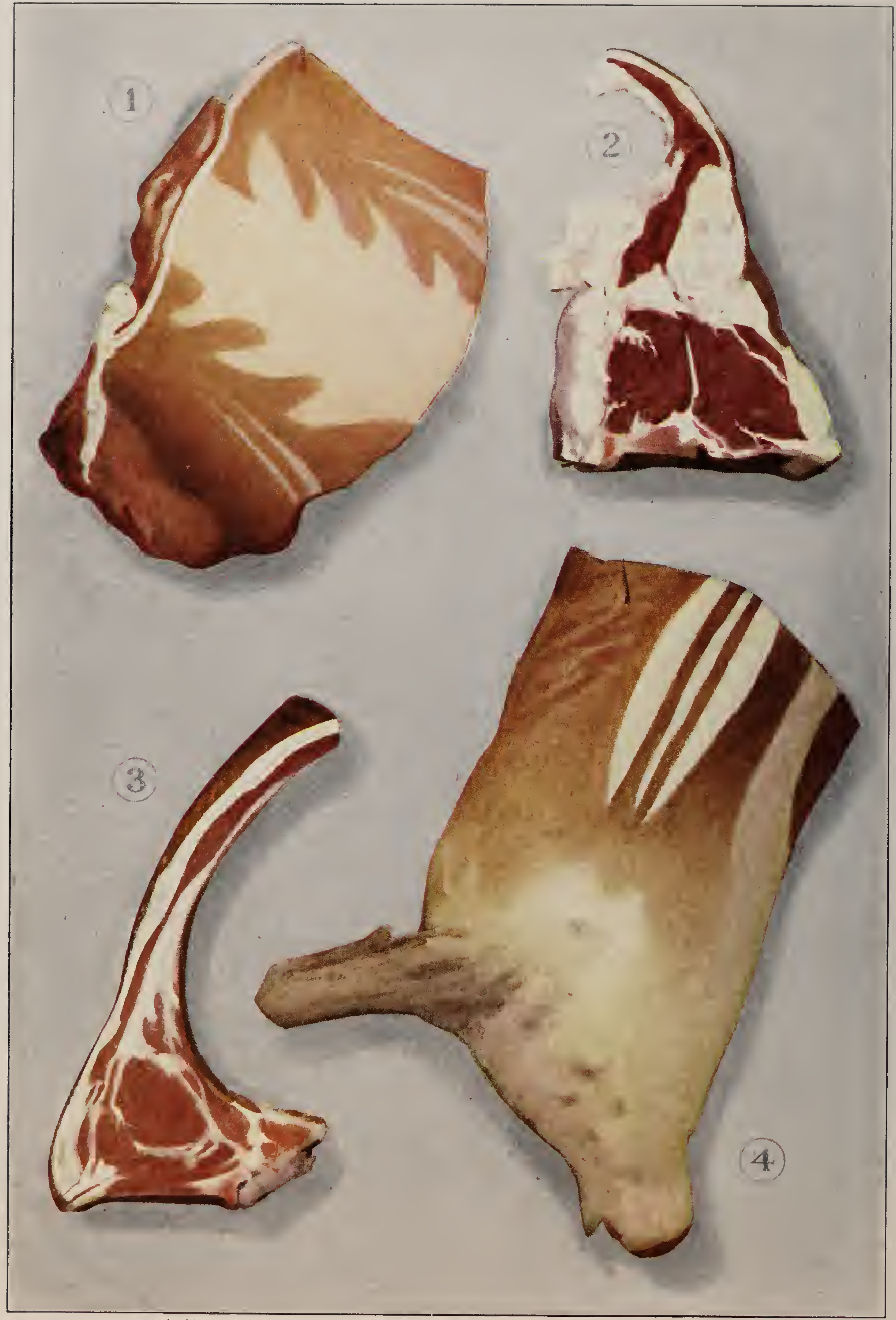
See also the subhead of *Fermented milk* in the article on Milk.

KUMQUAT, or Cumquat, a very small, orange-style fruit of China and Japan now under general cultivation—especially, in this country, along the Gulf of Mexico. The fruit is commonly oblong (round in some varieties) and the size of a small plum (see the color-page opposite 290). The rind is sweet and aromatic, and the pulp acid. The entire fruit, rind and all, is eaten by many people. It also serves, quartered or sliced, as an excellent and ornamental addition to fruit and nut salads, and is good candied or otherwise preserved whole, and as jelly and marmalade.

The tree was first grown here as an ornament—for the attractive contrast of its dark-green leaves and its small, orange-gold fruits. It attains naturally to a height of ten to fifteen feet, but in China and Japan many are potted and dwarfed to two or three feet. At state dinners in those countries and occasionally at fashionable banquets here and in Europe, the little trees are placed before the guests that they may pluck the fruits direct from the branches.

LABRADOR TEA, the leaves of a small, ornamental, evergreen shrub (*Ledum grœnlandicum*) of the heath family, wild in our northern states and Canada. They have frequently served instead of ordinary tea—to an especially large degree during the tea-proscription years immediately preceding the war of the American Revolution—and still do so at times in some parts. They contain a volatile oil that is aromatic and mildly narcotic.

LACTIC ACID, as it chiefly affects the average individual, is the acid formed in milk and cream by the action of lactic acid bacteria. See Milk, Butter, Buttermilk, and Cheese.



(1) Short Saddle
(3) Rib Chop

(2) Loin Chop
(4) Forequarter

LAMB

LACTO. See in the article on BUTTERMILK.

LACTOSE, the chemist's title for MILK-SUGAR (which see).

LAFAYETTE, or Spot, or Chub, a small, light-colored pan-fish (*Leiostomus xanthurus*), excellent in quality, weighing up to half a pound or a little more, common along the South Atlantic and Gulf coasts. A second ''spot'' of the same waters, averaging a little smaller but also very good, is *Diplodus holbrooki.* Among its other names are ''pinfish'' and ''Jimmy.''

LAKE HERRING, or Cisco, a fresh-water fish (*Argyrosomus artedi*), with herring-shaped body and closely allied to the whitefish, which abounds in the Great Lakes region, where it is caught and consumed in great quantities. The average weight is about a pound. A two-pound disco is an exceptionally large specimen.

The fish is also known locally as blueback, greenback, and greyback—with or without the title ''herring'' affixed. The differing color descriptions are attributable chiefly to age, sex, and time of run.

LAKE TROUT. See Great Lakes trout in the article on TROUT.

LAMB, by modern American usage, is the meat of sheep under twelve months old. The traditional dividing line between the oldest lamb (''yearling'' or ''fall'' or ''winter'') and mutton (the flesh of the mature animal) is the ''break joint'' test. If the bone above the ankle ''breaks'' readily, it is lamb; if it does not, it is mutton. In the latter case, the foot is removed at the ankle joint instead of by breaking. This test however includes as lamb many sheep between one and two years of age —which is considerably above the average age of market offerings, the tendency among growers in recent years being strongly towards shipping younger stock to market for sale as ''spring lamb.'' Spring lamb is divided into tender young animals of only eighteen to thirty pounds' dressed weight, in full season from early spring to June, and the larger carcasses and coarser type of lambs marketed during the fall and winter—chiefly of spring-born lambs bought from the growers in the fall and fattened by professional feeders.

''Hothouse'' lamb is very early, young spring lamb obtained usually by early breeding stimulated by transferring the sheep from cool to warm climates.

It is much more difficult to keep lamb in good condition than mutton and it also varies greatly in quality—the delicate flesh of the live animal being readily injured by rough treatment, storms, and poor food. The color and quality of the fat on the back and around the kidneys affords the best test—it should be white, even-colored, and hard. The cuts are known by the same titles as mutton cuts. See the color-page opposite and diagrams in the article on MUTTON.

Genuine young spring lamb requires careful cooking to bring to the table its full possibilities. As it suffers greatly from shrinkage and drying-out, over-roasting should be avoided, and it should be served as quickly as possible after coming from the spit or oven.

LAMB'S FRIES, lamb's testicles. They should be parboiled, cut in halves, and skinned, before seasoning and cooking.

LAMB'S-LETTUCE, Lamb's-quarter, local names for the salad-plant described under the title of Corn-salad.

LAMPREY, an eel-like, scaleless fish. The best North-American species is the sea-lamprey, which reaches a length of three feet. It is in season during April and May, leaving salt water at that time to ascend the rivers to spawn.

The flesh of the lampreys is soft, glutinous, and delicate, but most people find it very difficult to digest—hence the popular credence in the legend of the death of King Henry I from eating too many of them. In England, it is popular in the form of lamprey pie and potted lamprey.

LARD, hog's fat separated from the tissue by melting and straining. Its quality varies greatly. If pure, it should be white, and free from any disagreeable taste or smell.

Leaf lard, the choicest grade, is that from the leaf fat which lies around the kidneys. It is rendered at a moderately high temperature from the chopped leaf of freshly killed hogs, and is distinguished by its rich, grainy texture and crinkled appearance. The next best is that from the back, and the poorest that from the small intestines. The greater part of the lard marketed is obtained by steam-melting of the whole fat, except the leaf-fat.

Neutral lard, used in the manufacture of oleomargarin, is obtained by melting at a temperature of from 113° to 122° Fahr.

Lard should be stored in a dry, cool, dark place. Moisture, light, and high temperature affect its quality.

LARK. The common lark is seldom eaten in this country, but in Europe it is looked upon as a wholesome and delicate game-bird. In France it is most popular in the lark-pie which has helped to make the reputation of the city of Pithiviers.

LASAGNE, a kind of Macaroni (which see) in the form of ribbons.

LAVENDER, a perennial plant now grown principally for its flowers, which are used in making perfumes or for sale dried for sachet-bags. It was formerly very popular as a pot-herb and for flavoring jellies.

LAVER, a purple-spored, edible seaweed found on both the Atlantic and Pacific coasts. It is consumed in considerable quantities in parts of Asia and Europe. In Scotland and Ireland, under the name of "sloak," or "slook," it is boiled and served with butter, pepper, vinegar, etc., or fried in bacon fat after boiling. It is especially acceptable as an accompaniment for cold meats. It is best to cook it in a porcelain saucepan because of its tendency to act on metals. For its food value see the general article on Seaweed.

LEAVEN, dough which has become sour. It was formerly employed in bread-making, a small quantity being used to excite fermentation in new dough. Its use is, though, liable to give the bread a disagreeable flavor and odor, and in this country it has been almost entirely superseded by yeast wherever the latter is available. See also the article on Bread.

LEMONS—ready for gathering

LEBKUCHEN, or Sweet Cakes, or Honey Cakes, a famous group of German cakes, composed of a great diversity of ingredients, the most important being flour, honey, sugar, spices, alcohol, almonds, citron, and orange peel. A characteristic feature of manufacture is that the dough is allowed to "rest" for a considerable time before baking, so as to permit a better amalgamation of the flavors and other properties of its components—many makers hold it in cool, dry places for several months before sending it to the ovens. The best known varieties are white lebkuchen, brown lebkuchen, Bremen pepper-cake, Thorner lebkuchen, Baseler lebkuchen, and Nürnberger lebkuchen. Both imported and domestic lebkuchen are sold here, the principal demand being during the winter holidays. A well-made product will remain fresh for a year or eighteen months, the honey content keeping it moist.

LEEK, a relation of the onion, cultivated for the blanched lower parts of the leaves, commonly called the "stems," and the bulbous roots, both of which are used in cookery, chiefly in soups and stews. The stems are, in Europe, also served separate in asparagus style. The rank odor of the raw leek disappears in cooking, leaving a very mild onion flavor that is pleasing to the average palate.

LEGUME, a word applied botanically to the one-celled, two-valved seed-pod of plants of the *Fabaceæ,* to which belong the many varieties of beans, peas, and lentils. In popular usage the title has been extended to the seeds, or fruits, themselves. Legumes, also sometimes classed as "pulse," are among the most valuable of vegetable foods.

LEMON (see the color-page opposite). The lemon is a member of the citrus genus (which includes also oranges and grapefruits) and is probably native to the north of India. The tree—of sub-tropical and tropical growth—is small, with long straggling branches and short, sharp thorns, and with fragrant flowers and ripening fruits present together at all seasons. Three thousand lemons a year is not uncommon for a good tree under propitious circumstances. The fruit is usually oval, of various shades of yellow, and (generally) with convex oil-cysts in the rind. California produces an ever-increasing quantity, but not yet enough to supply the demand.

The fruit is gathered while still green and as soon as it has reached a marketable size, irrespective of the stage of maturity. The picker is provided with a steel measure, or gauge, and all fruit as large as, or over, the size of the gauge is clipped from the tree and placed in a bag suspended by shoulder-straps. A flourishing grove is ordinarily picked every four or five weeks. The months from December to March (inclusive) yield the largest crop, and from June to September, the smallest.

After gathering, the lemons are washed and then sorted according to their color—chiefly into dark green (unripe); silver green (partly ripe); and yellow (ripe).

The ripe are small fruits which have matured while attaining the gauge size. They are considered comparatively undesirable because of their poor keeping qualities and lower acid content, and are shipped out as quickly as possible. The unripe and partly ripe are placed in storage, separately, to "cure," i.e., to color and mature.

The normal curing of the unripe fruits covers from one to four months, their keeping quality depending largely on the care exercised in the control of temperature and humidity during the process. In the summer, the demand frequently exceeds

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Picking lemons near Palermo, Sicily

the storage supplies, and forced curing, or ''sweating,'' is then resorted to. This changes the dark green to the desired lemon tint in from three to six days.

For market purposes, California lemons are generally sorted into two or three, and sometimes four, grades, based on the general texture of the skin (on appearance, whether scarred or not), color, form, and general ''style.'' Size is not considered in this grading. The best of ''fancy'' fruits must have good color, fine texture, normal form, and no scars, and be heavy and juicy. A thin skin is also usually considered an essential qualification. The next lower grade is called ''choice.'' The third, ''standard,'' includes fruit which may be irregular in shape and badly scarred and discolored but is still of fair fruit value. The fourth or lowest quality is known as ''culls.'' The culls are used chiefly for the production of citric acid, lemon oil, lemon juice, and candied lemon peel, and in marmalades and similar products.

After grading, the lemons are sized by hand. They range from 180 to 540 to the box, running generally from 240 to 490. The most desirable sizes are those from 300 to 360 to the box.

The life of the lemons after leaving the packer depends upon the care exercised in handling—they readily deteriorate if damaged by bruising or by other abrasions of the skin. The only practicable method for holding them in large quantities for any considerable length of time is by cold storage. At a temperature of 40° Fahr., they will remain unimpaired for eight to twelve weeks. For household purposes, if refrigerator space is not available, they keep much better when immersed in fresh cold water than if left to dry out on a shelf.

The photograph opposite is of some of the huge, rough-skinned fruits frequently seen in Italy. They occasionally reach eight and nine inches in

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Large rough-skinned lemons of many parts of Italy, and also of Southern France length, with weight and width in full proportion, and are generally permitted to ripen on the trees. Their rind is employed in making candied lemon peel.

See also the separate articles on Lemon Juice, Lemon Oil, etc.

LEMONADE, a beverage made from the lemon, popular both as a means of allaying thirst and for medicinal purposes, being in the latter case drunk either hot or cold, according to the complaint. Itinerant venders of lemonade formerly employed citric or tartaric acid, or even a few drops of sulphuric acid, to make their mixture, only slicing a few lemons to float on top and please the eye. This practise is not as common as it used to be, but in some parts caution is still advisable. Many "lemonade powders" declared to be pure were made in a similar way. Reliable brands of lemon or lime juice are the best substitute when the fresh fruit is not obtainable.

LEMON EXTRACT. See Flavoring Extracts.

LEMON JUICE. In addition to its wide use in making lemonade and for general flavoring purposes, lemon juice is highly regarded among dietitians for its antiscorbutic qualities (see Food Values). Its chief character component is citric acid, in the proportion of about 7%. A good lemon of average size contains about two ounces of juice.

Bottled lemon juice, if of good quality, is the pure juice of fresh, sound lemons, sterilized at a low temperature. It will retain for a considerable time all the properties of the freshly expressed juice. It should be kept in a cool place and the contents of the bottle should be consumed as soon as possible after opening. Its commercial manufacture is handicapped by its tendency to change color and flavor during or after sterilization—taking on much of the flavor of bottled lime juice.

As with other citrus fruits (grapefruits and oranges among them) the citric acid of lemon juice becomes alkaline by oxidation in the human system, thus *reducing* general acidity, but there are nevertheless easily reached limitations of the stomach's acceptance of the juice. Hence the value of decitrated lemon juice—i.e., juice from which all, or most, of the citric acid has been removed—a particularly potent antiscorbutic because of the comparatively large quantities which can be drunk without causing gastro-intestinal trouble.

Lemon juice, both whole and *partly* decitrated, is efficacious also in dried form if carefully evaporated in vacuo at about 95° Fahr. (35° Cent.). Completely decitrated juice is not recommended for drying as it commonly loses its vitamin property during the process.

LEMON OIL. The greater part of the world's supply of essence, or essential oil, of lemon is produced in Sicily, and the finest is still of hand-extraction.

By Sicilian custom, the rind of the fruit is first cut off (generally in three strips), thrown into large baskets, and stored in a cool place until (after some hours) it is considered right for pressing. The discarded pulp is pressed for its juice (which is later treated to obtain its citric acid) and the residue is used as cattle-food.

Later in the day—or, as generally, next day—one of these baskets of rinds and an earthen (or tin-lined copper) bowl is set in front of each workman. He places a carefully washed and thoroughly dried medium-sized sponge of superfine quality in the hollow of his left hand and other small sponges between its fingers. With the right hand he takes a piece of peel from the basket and presses it several times against the larger sponge, thus forcing the oil through the pores of the rind into the sponge. When the sponge is full of essence it is squeezed into the bowl. The smaller sponges are similarly treated when they have caught sufficient of the very volatile oil. In order to make sure that the peel has yielded all that can be pressed out by hand, the overseer from time to time tests a piece by squeezing it close to a flame. If there is any considerable amount of essence left, it passes through the flame and produces a flash of light. (Children try the same experiment with orange peels.) The used peel is put into brine for manufacture into candied lemon peel.

When the vessels are full, they are set aside for a short time to permit the impurities to settle and then the contents are carefully decanted, the clear essence going into large tin-lined copper vessels. Before shipment, the product is passed through filter-paper to purify it and give it limpidity, and then—yellow and strong of odor—it is finally transferred to copper bottles of various standard sizes.

The quantity and quality of essence yielded varies according to the season. During November, December, and January, when the greater part of the supply is manufactured, one thousand lemons will give about one and a half to two pounds of essence. Lemons not fully ripe are preferred, as they yield a larger quantity and more fragrant quality than those fully matured. A small amount is made during the spring and summer, but it lacks the delicacy of the winter output.

A similar product is obtained in the French Riviera by rubbing the lemons on small, stout, brass pins, thus rupturing the rind cells and causing the oil to escape.

As marketed, hand-pressed essence is generally blended with the cheaper, inferior oil obtained by distillation of the grated peel.

LEMON PEEL, a product commercially most important for its use in the manufacture of lemon oil. Considerable quantities are also retailed plain-dried for culinary purposes and preserved in sugar as "candied lemon peel," the best qualities of the latter being prepared in much the same way as citron peel (see CITRON). Inferior grades are of peels discarded in the manufacture of lemon oil, etc.

LENTIL, an Old World legume, the short, broad, flat pods containing each two seeds, round like a pea, but flat and thin, and varying in color from grey or yellow to a deep brown. They are eaten when fully ripe—never green as peas or beans. On analysis they show an average composition of starch 50½%, protein 30%, sugar 3 1/3%, and moisture, etc., 16%. Large quantities are consumed in Europe in the form of soups and stews, and they are steadily growing in favor in this country.

The Large Yellow lentil is the variety most widely cultivated, but several smaller-seeded types (as the reddish Small Winter and the yellow Small March) are preferable—their flavor is better and their skins thinner.

The chief commercial classifications of the dried seeds are into "French" and "Egyptian." The French, greyish externally and yellowish within, are generally sold entire, retaining the tough outer skins, or seed-coats. The Egyptian are reddish-yellow and without the seed-coats; they are also smaller and of a more nearly perfect round than the French.

For soups, the seed-coats should be removed by straining after boiling, and meats should be added as a flavor.

A considerable proportion of our present domestic supply of lentils is still imported. It is probable that the near future will see the market fully provided by growers in the southwest sections.

LETTUCE, the chief salad-plant of modern days, is probably native to the Greek Islands. In England, the type generally known here as "romaine" still bears the name of "Cos lettuce," after the Island of Cos (now Stanchio) of the Ægean Sea, which is noteworthy as the birthplace of Hippocrates and several other famous men of ancient Greece. It was first used in England in 1520, and King Henry VIII conferred a special reward upon the gardener who devised the combination of "lettuce and cherries" for the royal table.

The many varieties under cultivation are capable of general classification into three principal types:

(1) Cabbage, or head, lettuce, the most widely cultivated form, ranging from a semi-formed to a tight cabbage-head.

(2) Bunch lettuce, which does not head.

(3) Romaine, or Cos lettuce, or leaf lettuce, which is distinguished by its long, straight, upright, crisp leaves, generally inclined to spoon-shape and with thick, crisp midribs. The inner leaves are usually blanched by tying the plant together during growth.

The title "romaine" was formerly applied specifically to certain varieties of Cos lettuce, but is now freely used as a type name interchangeable with "Cos." To the average housewife, the name "romaine" is more pleasing and sets more readily on the tongue than "Cos."

Another division of both cabbage and bunch lettuces is into "butter" and "crisp" kinds. "Butter," or "Butter-head" lettuce (commonly in close heads) has very thick leaves, almost oily in character.

Lettuces are characteristically green and creamy-white leaved, but there are numerous varieties with the exposed leaves of a full brown, or mottled with red and brown. And yet others have midribs so highly developed that it is an epicurean delight to eat them separate—the green part being cut away and used in a mixed salad or as greens.

If the leaves are washed for salad making, they should be thoroughly dried afterwards with a towel or napkin. If the head is close and good, no washing is necessary after the removal of the outside leaves, as the inner leaves will be quite clean. The outside leaves need not be thrown away—they make good greens, either by themselves or cooked with spinach—to the much wider general acceptability of the latter.

The heart of a head lettuce should be firm, crisp, and bleached—a rusty red tinge is an indication of overlong keeping.

Lettuce will keep fresh longer when the roots are left on the plant.

LEVULOSE, or Levoglucose, or Fructose, or Fruit-sugar, a monosaccharid—a "simple," or "single," sugar—found in fruits, vegetables, and honey, but (unlike glucose) to a very small extent, if at all, in animal blood. When consumed in foods or formed in the intestines (with glucose) by the inversion of ordinary sugar, it passes chiefly into the liver in the form of glycogen, to be later converted into glucose and as such to enter the tissues of the body.

It is almost uncrystallizable and to this characteristic is due the honey-like consistence of INVERT-SUGAR (which see).

LICHEN, small, slow-growing, and long-lived plants, compound organisms of fungi and algæ—moss-like in appearance to the untrained observer—which flourish under conditions that make life impossible to all other vegetation — in regions of severe cold—on barren rocks and arid mountain ranges—on trees and dead wood—as well as on soil. The varieties and their services are numerous. They convert the rocks into soil, feed the reindeer during the winter months, and furnish dyes of several colors. In times of scarcity they are requisitioned by mankind also as food, the best known of those thus employed being "Iceland Moss" (which see).

LICORICE, or Liquorice. The black licorice sticks familiar to the consumer consist, when pure, of the condensed juice of the crushed, boiled roots of the licorice-plant, mixed with a little starch to prevent it from melting in warm weather. The word "licorice" is a corruption of the generic name *Glycyrrhiza,* derived from the Greek words for "sweet root."

The licorice-plant is a small shrub of light green foliage, attaining a height of about three feet and favoring localities near rivers. When dug, the root is full of water and the drying process frequently takes from six months to a year. It is then sawed or cut into small pieces, six inches to a foot long, and carefully sorted, the good and sound being pressed into bales for shipment.

The bulk of the licorice rolls and paste of domestic consumption is manufactured in this country from the imported dried root, the principal sources of which are Portugal, Spain, Italy, Transcaucasia, and Turkey. That from Spain and Italy is the sweetest; that from Turkey, the most bitter.

The sale of licorice as a candy is merely incidental. It finds its principal use in medicine, in the manufacture of plug tobacco, etc. In France, Egypt, and elsewhere, it is diluted and served as a cooling drink.

The plant is cultivated to a small extent in Louisiana and California.

"LIGHTS," a term applied to the lungs of animals, originating in the fact that they float in water because of the air contained. They are imperfectly assimilable and must be ranked as poor in food value.

LIME (fruit). The true, or acid, lime is a fruit which is an agreeable change and substitute for the lemon, and is generally used in the same, or similar, ways. The varieties principally cultivated are nearly round, one to one and a half inches in diameter, and heavy with an aromatic and refreshingly sour, slightly bitter, juice. Other types reach to the size of an average lemon.

Dominica, Jamaica, and Mexico send us our main supplies of the fresh fruit. The increasing domestic crop is chiefly from southern Florida and the Keys. The tree is cultivated also in southern California, but it is not sufficiently hardy to warrant the risk of large plantings there.

Fresh limes are very perishable and they should be kept in a cool, dry place. If to be held for a considerable length of time, and refrigerator facilities are limited, it is a good idea to cover them with dry sand.

Lime Juice is pressed from the ripe fruit, the best qualities of the preserved juice coming from Dominica and Montserrat. The color should be a very pale straw—if it tends toward red, it is of inferior grade.

Fresh lime juice is useful as an antiscorbutic but it is less efficient than lemon juice. The commercial bottled-product is generally valueless for the purpose.

LIMEQUAT, a new fruit obtained by crossing the round kumquat with the lime—the object being to overcome the extreme sensitiveness of the lime-tree to any suspicion of frost. The result is a fruit with juice and pulp possessing much of the true lime character, carried by a tree which partakes of the comparative hardiness of its other parent.

LING, a large, long-bodied fish of the cod type, found in the North Atlantic. Good specimens measure three to four feet—and more—in length. It is more common in European than in American waters. Immense quantities are consumed salted, and split and dried—in the latter form being included with cod and other fish as "stockfish." The name "ling" is also, incorrectly, applied to various other fishes—as the burbot and hake.

LING-BERRY, the "mountain cranberry" (see Cranberry). The title is also applied to several other berries, edible and otherwise.

LIQUORICE, a widely accepted way of spelling Licorice (which see).

LITCHI, or Lichi, or Lee-chee (see color-page opposite), the most famous of Chinese fruits, borne in loose clusters on a spreading tree with a dense head of rich green foliage. Under such titles as "litchi nut" and "Chinese nut" it is fairly well known here in its dried form—then a modicum of shrunken, brown or blackish, raisin-like flesh surrounding a brown seed, sometimes large, sometimes small, according to the variety, enveloped by a thin, brittle, red-tinted brown shell, roundish, about an inch to one and one-fourth inches in diameter, often indented by pressure while it was still fresh, and marked by many small protuberances.

The fresh fruit is very different in appearance. The thin shell is then a bright scarlet or a deep rose—the whole fruit suggesting the strawberry—and the flesh is a firm, white or pinkish, translucent, juicy pulp, aromatic and subacid.

The fresh pulp, shelled and seeded, is imported in canned form. It is also made into excellent preserves.

The food value of the litchi is in its carbohydrate content—a mixture of simple, easily digested sugars, their flavor heightened by citric and other fruit acids. Its protein percentage is small and it is practically fat free.

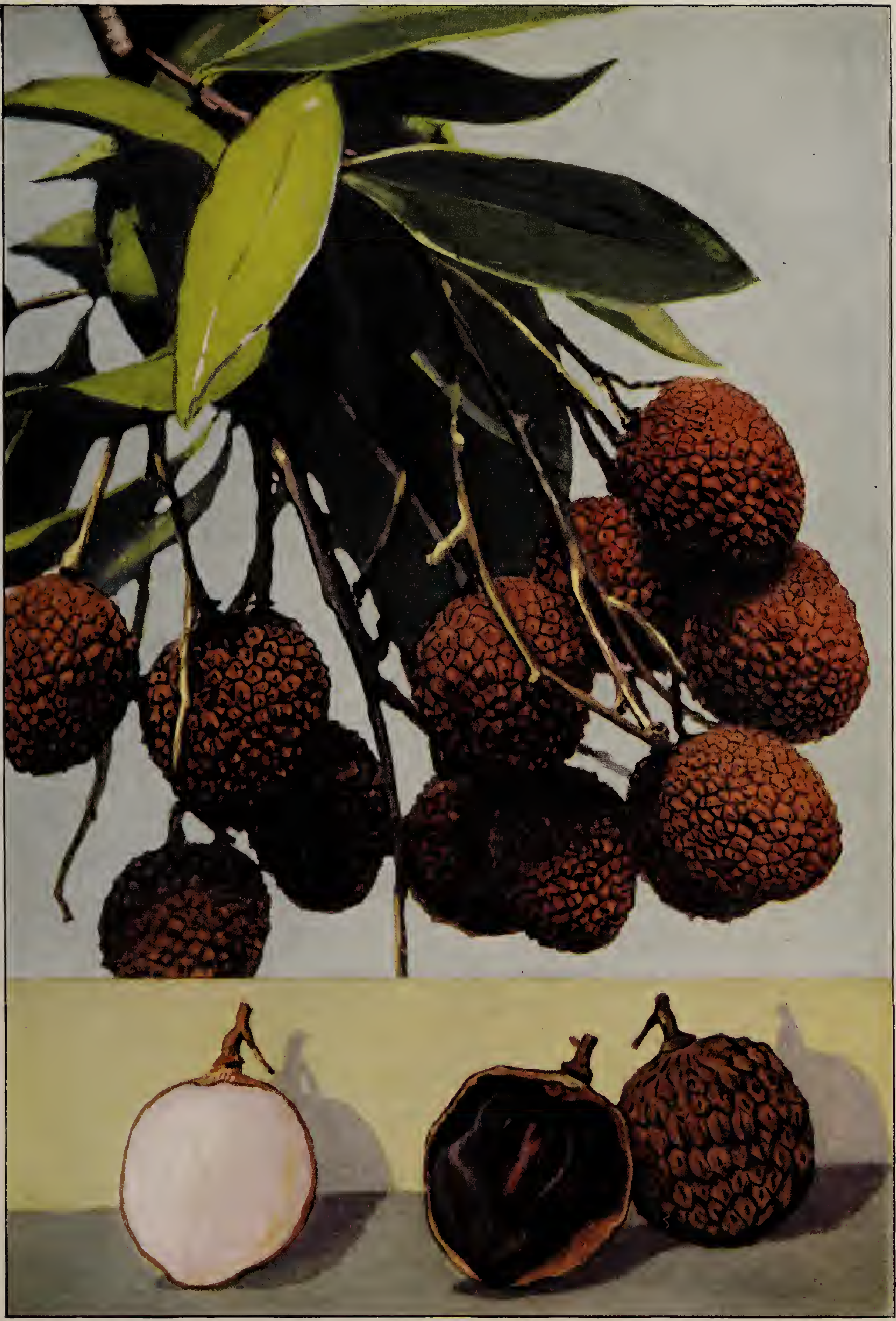
LIVER. The livers of animals such as the steer, the calf, and the sheep, contain a large amount of nitrogenous matter, and are also valuable for their vitamin content, but for many people they are difficult of digestion unless chopped fine before cooking or very carefully masticated. They are best avoided by dyspeptics.

Good, fresh liver should be clear, bright, and of yellowish red.

In large cities, calf's liver is so much in demand by the hotel and restaurant trade that there is often none left for the casual domestic buyer. The small end of beef liver is, consequently, often substituted if the purchaser is uninitiated. The order of quality is (1) calf's, (2) beef (if of young cattle), (3) lamb's, (4) pig's, and (5) sheep's.

Pig's and sheep's livers are largely used by sausage manufacturers and as fish-food in hatcheries.

See also Foie Gras (Goose liver).



THE LITCHI, THE MOST FAMOUS CHINESE FRUIT

Fresh —on the branch, and a vertical section

Dried

LIVER PUDDING. See the article on SAUSAGES.

LOBSTER, the most highly rated of crustaceans, and considered by many people to be the most delicate and delicious of all sea-food. In addition to its consumption fresh, its meat is canned in immense quantities.

The true lobsters are those of the Atlantic, distinguished by big double claws, or pincers. There are three species—the American common lobster, the European common lobster, and the Norwegian lobster.

By far the most important are the American and European, and they are so similar that it is unnecessary to differentiate them here. The shells of the live creatures are variable in color, but the upper part is generally a bluish or blackish-green, blotched and spotted, with red touches on the tubercles, tips, and under-parts of the pincers, etc. The full characteristic red of the cooked lobster comes with the boiling.

The lobster starts its life as a little, dark green egg about one-sixteenth of an inch in diameter, which, after being laid, remains attached to its mother's abdomen for ten or eleven months before it hatches, increasing slowly in size and becoming lighter in color. The female lobster thus transporting her eggs is known as "in berry."

After its long delayed hatching, the young larval lobster—commencing with a length of a little more than one-third of an inch—casts its shell three times before the generally recognizable characteristics of the adult are assumed, and until the fifth change, which is ordinarily reached at the age of from three to six weeks, it remains near the surface of the water and is destroyed by the million, both by storms and by surface-feeding fish. It is estimated that but two lobsters out of every ten thousand reach maturity, but as an aid in counteracting this alarmingly small percentage, a ten-inch lobster will average about ten thousand eggs at a time, and doubles her product with every additional two inches of length!

After its fifth transformation, the young lobster's habitat is the bottom of the sea, where it feeds principally on fish, alive or dead indifferently. With continuous development, it repeatedly outgrows its shell—each time discarding the shell when its confinement becomes irksome, in favor of a soft, flexible, new covering that has developed beneath it.

A lobster about to molt is known as a "shedder" or "black lobster," because of the dull, dark tint of the old shell, and as "soft-shell" after the molting process. During the time which is required to harden its new covering, the lobster increases rapidly in size. Shedders and soft-shells are undesirable as food, for their flesh is lean and watery.

Lobster fishing is conducted all the way from Labrador to Delaware. Along Maine and Nova Scotia are the most fruitful sections, Nova Scotia being noted also for its large canneries.

The summer is harvest time, for lobsters then hug the shore and are more easily obtained than in the winter, when they go farther to sea. They are caught by means of "pots," or traps—box-like or semi-cylindrical affairs, averaging four feet long, two feet wide, and one and one-half feet high, made of laths or iron bars. The entrance, on the end, is funnel-shaped and of netting or wood, so formed as to make ingress easy, and egress practically impossible. The pot is baited with fish, weighted, and sunk to the bottom of the lobsters' feeding ground, generally about a half mile from shore, its location being marked by a buoy bearing the owner's name. The fisherman empties the pot through a door at the top, and throws back into the water the lobsters under the legal size—which is regulated by state legislation and varies from time to time.

The average weight of those caught nowadays is from one to two and one-half pounds—those of one pound or thereabouts being styled "chicken lobsters" — but specimens of fifteen to twenty pounds, and even over thirty pounds, have been taken. A thirty-pound creature will have a body length of nearly two feet, pincers of fifteen inches or so, and a total length (with claws pulled out straight) of close upon four feet! Such big creatures were common in early colonial days though now of exceedingly rare occurrence. Nor are they desirable from the diner's standpoint as their flesh is liable to be leathery. A small lobster heavy for its size is the choicest —the most tender and succulent. Lightness for size is a defect, no matter what the size may be.

The enormous destruction and consumption, and the difficulties experienced in safeguarding natural propagation, have resulted in a steady diminution of the supply, but energetic measures have been taken by the Government to offset the conditions, and in the United States "sea nurseries" artificial propagation has proved so successful that it is reasonable to hope for a long and large supply for the future. One of the most difficult problems of early efforts was to prevent the baby lobsters from cannibalistically destroying each other—each seemed to the other just as reasonably edible as any other floating morsel! The problem has been largely solved by care to avoid overcrowding, by furnishing an abundance of other well divided, suitable food, and, as a final supplementary measure, by placing rotating fans in the rearing tanks. The water movement thus secured renders it more difficult for the little lobsters to get hold of each other.

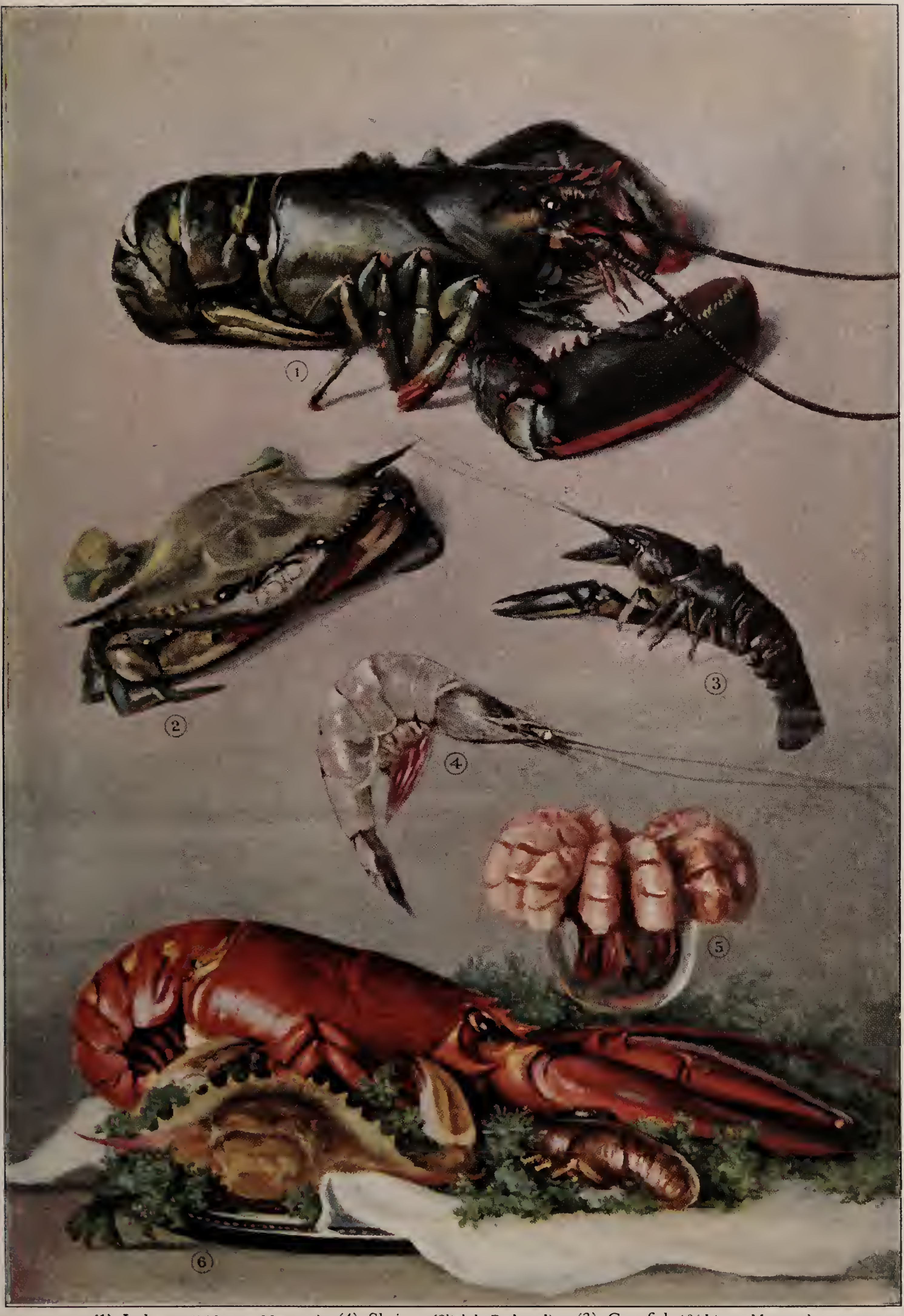
The lobster is better steamed than boiled, and (if to be eaten hot) should be served immediately. If to be eaten cold, it should be set under a stream of cold water for a few minutes—otherwise the contained heat will continue the cooking and evaporate much of the natural juiciness of the flesh. The shell should be lightly rubbed with a little oil or fat before serving. This makes the red color more brilliant.

Many people eat only the white flesh and the roe—the well informed epicure empties the shell, devouring all its contents. The liver, etc., are just as wholesome as the white meat if the lobster is a fresh one—and if it is not fresh it should not be eaten at all!

The white flesh contains about 19% protein; the liver (the greater part of the body) has about 12%. Both carry also a little more than 1% of fat. It is the denseness and coarseness of its fibres that render the flesh somewhat indigestible unless it is well masticated.

The *Norwegian lobster,* of Scandinavian and other North-European coasts, is a small, slender creature of delicate pinkish tint with brown markings on the abdomen and tail fan. It seldom attains a length in excess of eight inches.

The *Spiny lobster* of the Pacific coast is of a different, warm-water family. It lacks the double claws of the true lobster, being instead rendered distinctively conspicuous by its long "horns" (remarkably well developed antennæ). It may be of almost any color from a light red to nearly black, and its range of weight is up to twenty pounds, though specimens exceeding seven or eight pounds are scarce. Its numerous sharp spines and spine-pointed joints are admirable as means of de-



(1) Lobster (½ Linear Measure) (4) Shrimp (Slightly Reduced) (3) Crayfish (⅔ Linear Measure)
(2) Crab (½ Linear Measure) (5) Prawns (Cooked)
(6) Cooked Lobster, Crab and Crayfish

fense, and should be held carefully in mind when handling it. Only the thorax and tail flesh is ordinarily eaten—this being both tender and of excellent flavor. Of the several species of spiny lobsters is the big, highly colored langouste so highly esteemed in France—and preferred there to the true lobster.

Of yet another family is the "scaly," or "warty," or "locust" lobster—known also as the "sea-roach" and "mother lobster"—of Florida, the West Indies, and other tropical and sub-tropical regions. It may be recognized by its lack of pincers, short antennæ, squarish, flattened, warty shell, and small slim legs. It grows to large size and some authorities declare its flesh to be the finest of all lobster-meat.

LOBSTER BUTTER, or PASTE, cooked lobster "coral," or roe, pounded to a paste, mixed with butter, etc., and rubbed through a sieve. The term "coral" had its origin in the appearance of the lobster eggs after cooking.

LOCKSOY, a fine-drawn Rice-macaroni (which see), imported from China. It is used to thicken soups.

LOCUST-BEAN. See Carob-bean.

LOGANBERRY, or Logan Blackberry, a distinctively flavored variety of red-fruited dewberry, or trailing blackberry, discovered only a few decades ago, which has recently attained commercial importance and is now widely cultivated in the Pacific Coast states. In shape it resembles a blackberry; in color, a red raspberry (see the color-page facing 42), changing to a dark purplish red when fully ripe. Its flavor suggests the raspberry, but is more sprightly and acid. Its chief value is as a fresh-cooked or canned fruit, or dried or otherwise preserved, or for its juice. It is an excellent "pie" fruit. Unless very fully ripened on the vines, it is too tart to be generally acceptable for eating raw.

Much of the fruit canned and dried is small because the demand exceeds the supply and sweeps in the entire crop irrespective of size, but good specimens are very large—up to two inches or more in length.

There is no merit to the widely accepted theory that the loganberry is a hybrid of a red raspberry and a blackberry.

Loganberry juice, unless modified in description on the label, is (or should be) full fruit juice with no other addition than sugar to make it sufficiently sweet to please the average palate. For service as a beverage, it is best diluted with water—one-third to one-half of the juice and two-thirds to one-half of water, either plain or carbonated. If the juice is sold with water added, dilution may not be desirable. The full juice is also used to blend with other fruits and fruit juices in jellies and jams, and for making fruit sauces.

LONGAN, or Longyen, a fruit, much esteemed in China and Malaysia, which resembles the litchi, though smoother and yellowish-brown of shell, and generally smaller and inferior in flavor. It is rather insipid as a fresh fruit, but it makes fairly good preserves and is exported both in that form and plain dried. The tree is hardier than that of the litchi and thrives in protected parts of Florida and California.

Loquats

LOQUAT (see color-page opposite), the fruit of a small, handsome, evergreen tree believed to be native to China and Japan, now cultivated in California and the Gulf states. It varies from round to pear-shaped, from pale yellow to deep orange in skin, and from white to pinkish-orange in flesh. Fine specimens of good varieties are frequently three inches in length. The flesh is juicy and very agreeable when fully ripe, somewhat suggesting the cherry in flavor. It can be eaten in almost any manner, raw or cooked, that serves for other fruits. Its chief defect is an excess of the large seeds which fill the center. The down should be carefully wiped off before serving to eat raw. For jelly-making, one uses the more acid, only partly ripened, fruits.

The loquat is also known as the ''Japanese medlar.''

LOTUS. What was the lotus of the classical Libyan lotophagi—the original lotus-eaters — which produced such dreamy forgetfulness that travelers and sojourners who ate of it lost all desire to return to their own homes? Perhaps the yellow-blossomed, trailing, leguminous ''bird's foot trefoil'' (*Lotus corniculatus*) that now runs wild in some parts of the United States; or the date; or a jujube (*Zizyphus lotus*); or the fruit of a nettle-tree; or an Oriental fruit allied to the persimmon—or any one of several other surmises. It was not any of the waterlilies which now bear the name.

LOVAGE, or Garden Lovage, or Italian Lovage, an aromatic plant now grown chiefly for its seeds, which are used in candy-making. The young blanched stalks and stem-bottoms were formerly of wide consumption as a salad vegetable of the same type as celery and are still popular for that purpose in some parts of southern Europe. The plant is easily grown either from seed or by root division, and a bed will continue to produce for a number of years. A minor use of the leaves is the production of lovage oil, which is employed medicinally to a small extent.

Scottish Lovage, or Sea-lovage, a similar plant of the same species, naturalized in the United States, grows wild on the Shetland Isles, north of Scotland, and is there used as a popular article of diet.

KUMQUAT LOQUAT

MACARONI, Spaghetti, etc. Macaroni, spaghetti, and similar "pastes" are considered by the general public as a typical and peculiarly Italian food, and Italy is probably entitled to the credit for her early appreciation of their virtues and her fidelity to them after adoption, but history credits their invention to the Chinese and their European introduction to the Germans. The Italians are said to have learned the art of making them from the latter. History, however, also informs us that by the time the fourteenth century had rolled around, Italy was the only European nation enjoying "macaroni," and that she held for a full hundred years the secret of the method of its manufacture. Later, some enterprising Frenchman introduced it into France, and with much success, for it is on record that King Louis XIII ordered a dish of it from an innkeeper at Tours who had made a great name for its preparation.

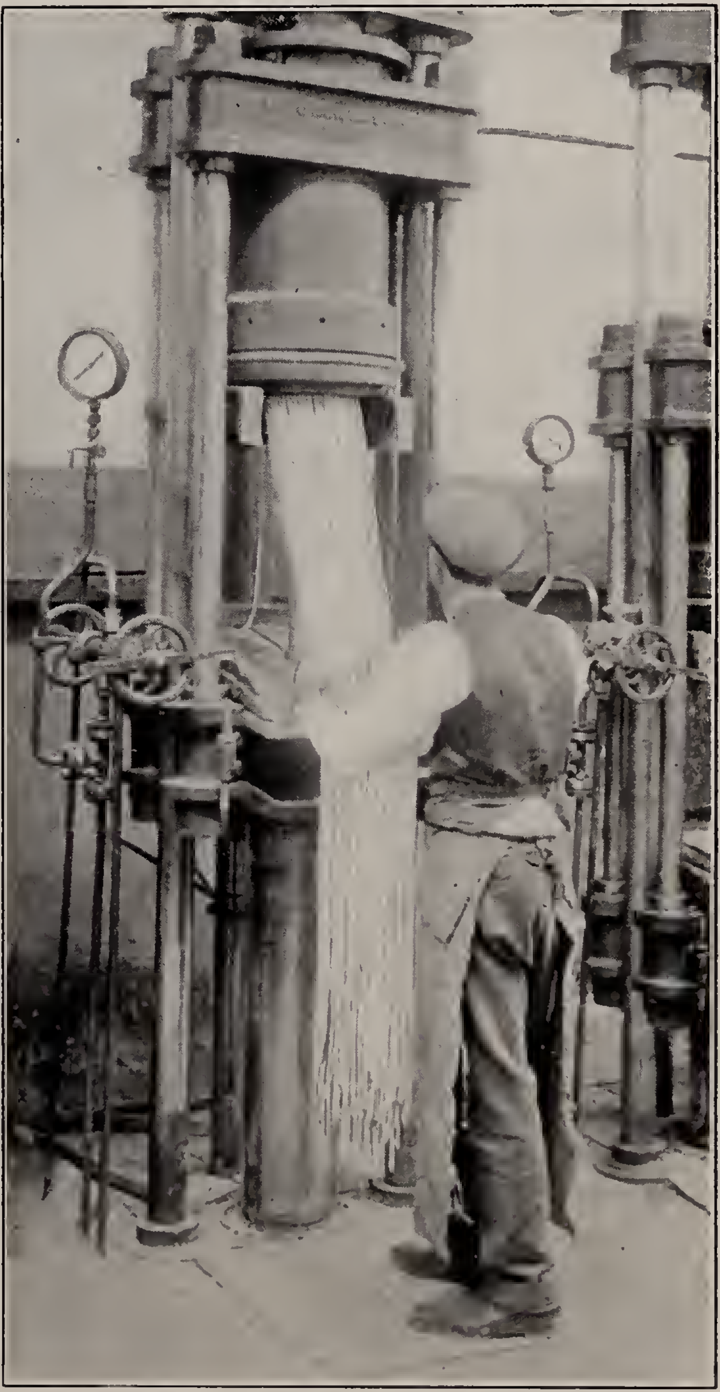
The above is briefly the European idea of the history of macaroni, etc.—but it is disputed by the Japanese, who claim priority in its use by hundreds of years, their product being however of rice (see RICE-MACARONI) instead of wheat as is ours.

The essential point in the manufacture of the pastes (excepting those of the Orient) is that the meal or "semolina" from which they are made be from hard, very glutenous wheat, the kind known as durum, or "macaroni," wheat in this country (see *Semolina* in the article on FARINA and also reference in WHEAT).

The semolina is moistened with the smallest possible quantity of boiling water, and thoroughly mixed (by machinery) until smooth and "tough." It is then worked up in a powerful machine kneader. The completed dough goes into the cylinder of a press, where tremendous pressure is brought to bear on it by means of revolving screws, and it is slowly passed out at the bottom of the cylinder through the small holes of the "trafila," as the perforated plate is called.

The form of the trafila fixes the character of the product. For macaroni and similar varieties, there is in each hole a steel pin which gives the "pipes" their hollow, or tubular, form. With smaller holes without pins, the trafila produces "solid" spaghetti and similar types. For flat, noodle-like, or "ribbon" varieties, a flat opening takes the place of the round hole.

The short sizes, as also small fancy



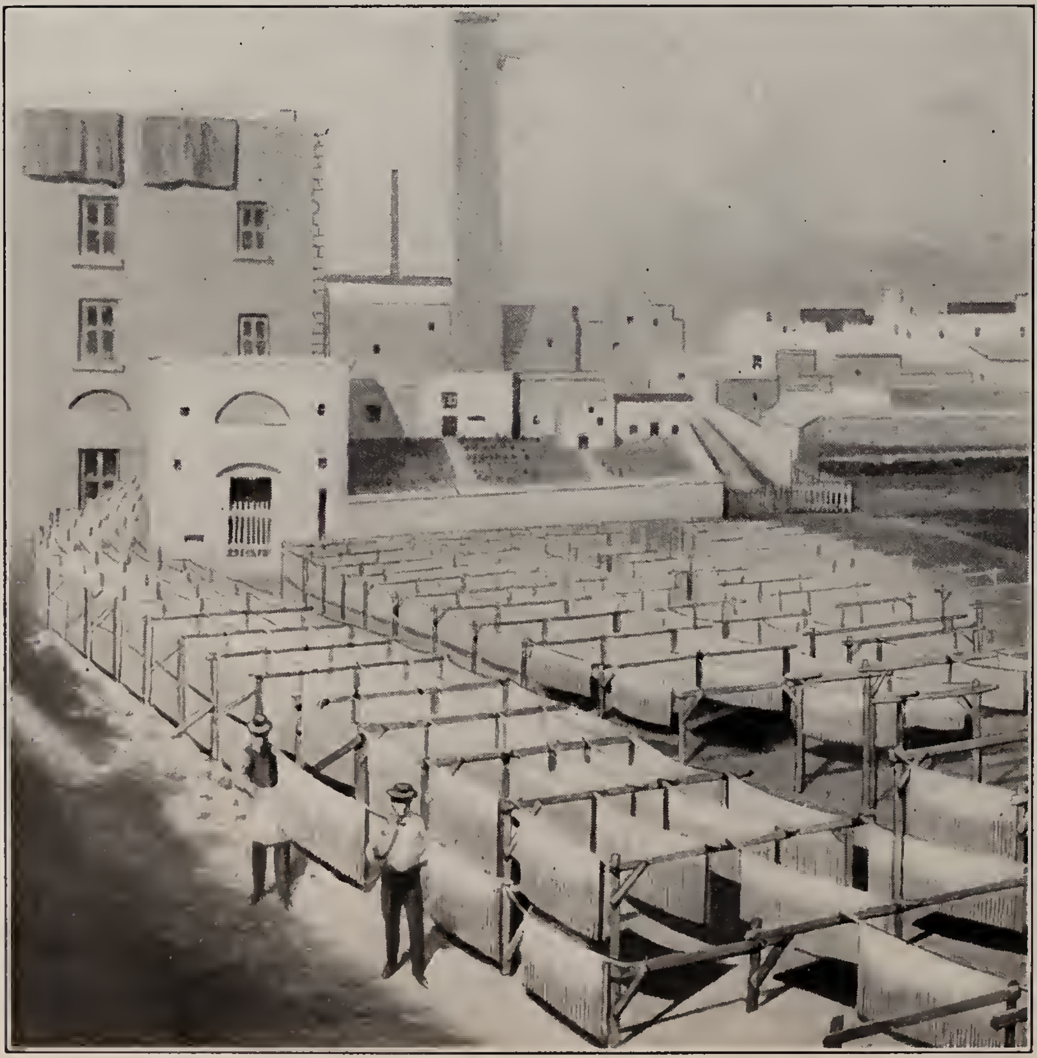
Cutting off the macaroni strings as they come out of the "trafila" styles, are sliced off by automatic rotary knives as the paste comes out of the trafila. The long varieties are cut off at the proper lengths by hand.

Next comes the drying—in Italy, generally accomplished by outdoor exposure; in this country, commonly in heated drying rooms, supplied (in the best conducted factories) with continually changing, washed, and filtered air. The long solid pastes may be looped over canes, or spread on frames; the others usually on frames only. When sufficiently dry, they are carefully inspected, sorted, weighed, and packed.

In Italy, colored pastes are popular in some parts—especially in Bologna. The most used tints are yellow, green, and red, produced respectively by the admixture of eggs, spinach juice, and beet juice.

The proportion of profit in paste manufacture depends to a considerable extent on the care in drying—on the vigilance exercised in ensuring an unvarying temperature of the proper degree. If the air is allowed to become too moist, the entire batch may be ruined by mildew or souring; if too hot, it may spoil by over-rapid drying and consequent cracking or damage to its texture; and if the room is draughty, loss by cracking is again the result.

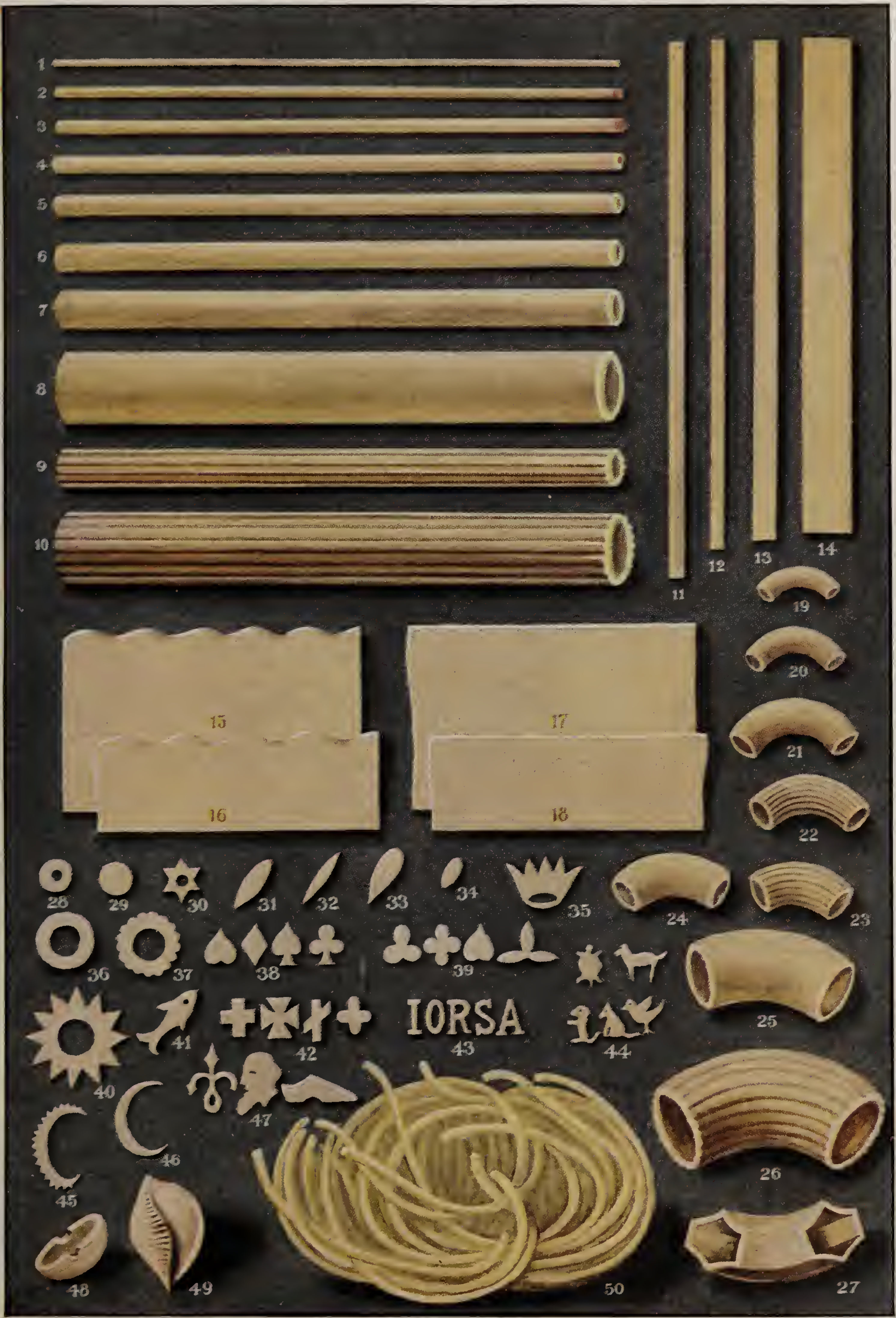
The average American consumer has no idea of the number of forms, a hundred or more, into which the paste is shaped by Italian manufacturers. They range from *lasagnes,* short, flat pieces from one to two inches wide, cut out, and sometimes molded, by hand, to *fidellini,* long, thin threads, the finest of which are many times smaller than *vermicelli,* which is the finest generally known here—and, in between, a great variety of styles and sizes — plain and twisted; long and short; stars, dots, crescents, little animal shapes, etc. See the color-page opposite, illustrating a number of different kinds. The small fancy styles are especially attractive for service in soups.



Drying spaghetti and various other "pastes" in the open air—a scene in the vicinity of Naples, Italy

All of these pastes should be kept in a dry, cool place. Under proper conditions they will remain good for a long time, but it is not generally advisable to risk deterioration by laying in a large stock.

In cooking, be careful to put them into *boiling,* and salted, water. Cold water will spoil even the best grades. The water must be kept fully boiling for from twenty to thirty



MACARONI AND SIMILAR PASTES

(1) Vermicelli
(2) Spaghettini
(3) Spaghetti
(4) Foratini or
Maccheroncelli
(5) Forati or
Perciatelli

(6) Mezzanelli
(7) Mezzani or
"Macaroni"
8) Zitoni
9) Mezzani Rigati
(10 Zitoni Rigati

(11) Tagliarini
(12) Linguine
(13) Trenette
(14) Fettuccelle
(15, 16) Lasagne Ricce
(17, 18) Lasagne Lisci
(19, 20) Tubetti

(21, 24, 25) Ditali Lisci
(22, 23) Ditali Rigati
(26) Rigatoni
(27) Bombollotis
(28 to 49) "Fancy Pastes"— seeds, stars, alphabets, animals, &c.
(50) Curled Vermicelli

minutes—until the paste is tender. When done, drain well and season or dress to suit individual tastes. The idea is to have every piece thoroughly tender, but each piece whole, separate, and without mushiness or stickiness.

If properly made of fresh, durum-wheat semolina, the raw pastes are of slightly golden color and translucent. The latter point is important, as the desired color may be artificially secured. Another quick test is to break a piece—the fracture should be horny, not starchy. The best and only really conclusive test is, however, that of cooking. If macaroni or spaghetti, or any other paste, becomes mushy or sticky or does not retain its shape, despite correct and careful cooking, it is of poor quality, no matter what its color or appearance in the package—it is probably either a "flour" product or made from a wrong variety of wheat. Consequently it is not good policy to buy any considerable quantity put up by a new or unknown manufacturer until you have tried it by cooking.

Flour macaroni, Flour spaghetti, etc., are similar, but inferior, products made of ordinary wheat-flour or a mixture of it with semolina.

Whole wheat macaroni, etc., offer the same dietetic advantages as whole wheat bread.

MACARONI BREAD. See subhead in the article on BREAD.

MACARONI, or Durum, WHEAT. See references in MACARONI and WHEAT.

MACAROONS. There are two chief kinds of the sweet biscuits known as "macaroons"—those made of almond meal and those of shredded coconut—both, if of the best quality, being blended with egg whites and sugar. They should be eaten as fresh as possible, and should be kept in a dry, moderately cool place, protected from the air.

Macaroons were first made by an order of nuns at St. Emilion, France.

MACE, the aril, or covering, which envelops the shell enclosing the nutmeg (see NUTMEG and the color-page facing 348). It closely resembles a lacerated membrane, being blood-red and somewhat fleshy when fresh. It is prepared for the market by being flattened out and dried for several days in the sun, much of it becoming a red-yellowish during the process. It is used both in "blade" and ground form to spice soups, sauces, and puddings, its flavor closely resembling nutmeg, but being, to many tastes, even more pleasing. Care should be taken to choose that with a deep orange color and clear, transparent, wax-like appearance. Dull-looking mace is not desirable. It should be always kept in air-tight receptacles.

"Macassar," "Papua," and "Bombay" mace are fictitious titles given to a wild product, the mixing of which with cultivated mace is rated as adulteration.

Mace also furnishes a strong, yellow, volatile oil, and a buttery fixed oil—the latter mixed with other substances, being known as "nutmeg balsam."

"Oil of mace"—a different product—a solid, reddish-brown, fatty substance—is prepared by the compression of steamed, ground, "refuse" nutmegs—those small, off-shape, etc. It is also known as "nutmeg butter."

MACÉDOINE, a mixture of cut fruits or vegetables of different colors. Vegetable macédoine is now retailed in bottles and tins for use in soups, as a vegetable dish, and for garnishing.

MACKEREL (see the color-page opposite). The common mackerel, considered by many the most beautiful of all fishes which find their way to our markets, is at home everywhere throughout the North Atlantic. On this side of the ocean it makes its first appearance in early spring in large shoals, or "schools," off the coasts of Virginia and Maryland. Striking northward, they visit successively Cape May, Sandy Hook, Block Island, Cape Cod, and various other points. They can be traced as far as Labrador. How much further they go, no one can tell. The yearly catch —chiefly by drift nets, shot into the sea from fishing smacks — is very large, but it fluctuates considerably, and averages less than formerly.

The mackerel ranges in length up to seventeen or eighteen inches, the average market size being twelve inches, with a weight of from three-quarters of a pound to a pound. It varies in color from multi-hued to white, with dark-blue back stripes. It is full grown at about four years. The young fish are known as "spikes," "blinkers," and "tinkers." "Spikes," the smallest marketed, are five to six inches long and five to seven months old. "Blinkers" are a size larger. "Tinkers" are those approaching, but under, nine inches in length and are presumed to be about two years old.

The greater part of the catch is consumed salted, smoked, and canned—whole or filleted, "soused" or pickled, in oil, wine sauce, vinegar, and spices. The fresh fish is in season from April to about September.

Salt mackerel are shipped first in barrels, to be later repacked according to the demands of the trade. They are carefully graded for the market as 1, 2, 3, and 4. *No. 1* quality must be thirteen inches or longer; free from taint, damage, and rust; and fine, fat fish. *No. 2* must be fat and free from rust, and not less than eleven inches. *No. 3* consist of the best left after the selection of Nos. 1 and 2. *No. 4* is the result of the three preceding assortings, after a final discarding of those damaged or tainted.

The location in which mackerel are caught has an influence in determining their commercial value. The finest European catches are those taken off the coasts of Ireland and Norway. The best sold here are from the New England shore-waters.

In addition to the home supply, from twenty to thirty million pounds are imported annually, principally from England, Ireland, Scandinavia, and Canada.

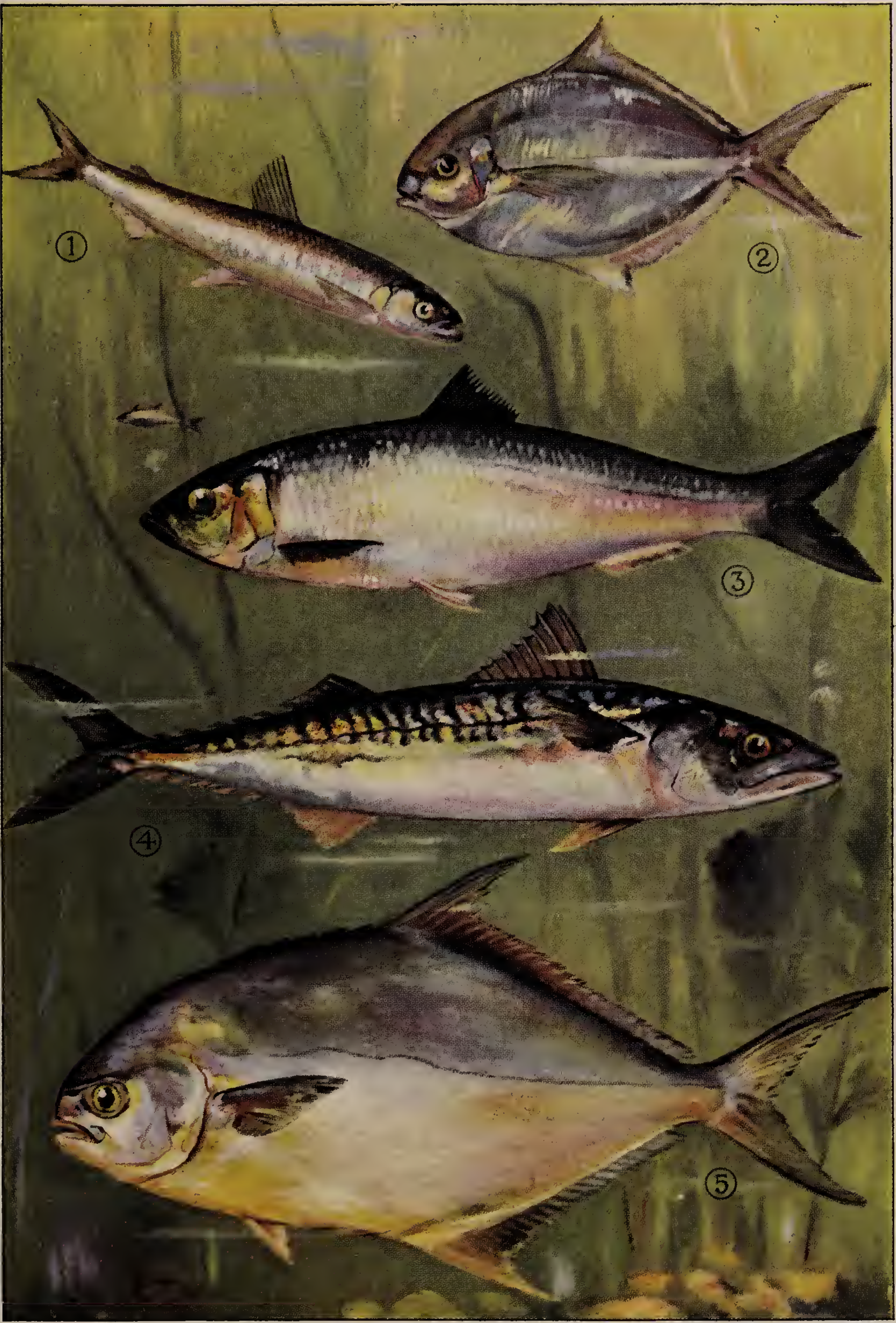
The mackerel is much esteemed, its firm flesh having an agreeable flavor, but (as usually prepared for the table) it is not easily digested on account of its large proportion of oil. This difficulty vanishes with proper cooking — by simmering it after boiling for a considerable time—three or four times as long as for any other fish except salmon. In preparing it for cooking, it is nearly always preferable to wipe it dry with a clean cloth in place of washing it.

The large fish are the most liable to have reddish meat, but the whiter flesh of the best cured grades is chiefly due to special care in soaking out the blood before salting.

The *Chub mackerels,* or Tinker mackerels, of both the Atlantic and Pacific, are similar fish of the same genus, fully equal in flesh value though of less importance commercially. They are especially plentiful off southern California.

See also SPANISH MACKEREL.

MACKEREL SCAD. The two best known of the mackerel scads are the Common which is occasionally caught off Massachusetts but generally prefers warmer



SALT-WATER FISH

(1) American Smelt
(2) Butterfish; Dollarfish
(3) Common Herring
(4) Common Mackerel
(5) Common Pompano

The illustrations are a little less than one-half the length of fair specimens.

waters, and the "Scad," or "round robin," of Florida and the West Indies, the latter reaching a foot or so in length.

MAGUEY, a popular Mexican title for the agave—to us a genus of ornamental plants but to Mexico one of the greatest utility, furnishing fiber, soap, fermented and spirituous liquors, and food. It is best known as the source of the fermented pulque and the distilled mescal. The species most familiar to the average resident of the United States is that of the famous century-plant, which in its native habitat develops leaves six to eight inches wide and five to seven feet long, and a flower-stalk twenty to thirty feet in height. The species most widely cultivated in Mexico is *A. atrovirens,* also typically very large and including a number of varieties.

Elmendorf-Galloway

Maguey, or agave

A mature Mexican maguey (the result of several years of growth) consists of from twenty to fifty of its huge, succulent leaves surrounding a large, fleshy base—a plant of good size weighing a ton or more. It is these bases, and also the enormous flower-buds, taken shortly before flowering, which are eaten. The bases are fleshy and sweet with a flavor suggesting the artichoke. The buds are enjoyed as a sweet preserve after slow roasting and baking in furnaces or pits.

The unfermented juice of the maguey, obtained from the living plant (the secretion increased by checking its flowering and by other processes), is known as *aqua miel* ("honey water"). It is a yellowish, sweetish, rather pleasing beverage.

MAIGRE, a French term applied in cookery to dishes prepared without "butcher's meat," poultry, or game, and in which butter is used to the exclusion of lard or other fat. They consist chiefly of eggs, fish, and vegetables, and are eaten by Catholics on occasions which interdict the use of meat, as the term is generally understood. The word also signifies the lean of meat and a low diet; and as an adjective stands for "thin," "poor," and "scanty."

MAIZE. See Corn.

MALT, grain (especially barley) in which enzymes, particularly diastase enzymes, have been developed by allowing it to sprout. It is used in the making of malt beverages, malt-extract, etc.

The grain is first steeped in cisterns, or "drums," of water for from forty-eight to seventy-two hours and then encouraged to germinate—first, in rectangular heaps, or "couches," sixteen to twenty inches deep, and afterwards spread thin on the growing-floors; finally being kiln-dried and screened to remove the sprouts, etc.

The great commercial value of the diastase developed is its high power in the conversion of starch and starchy meal—as corn or rye meal—into soluble dextrins and fermentable sugar (maltose), and intermediate products.

The commercial diastase employed in baking and for some other purposes instead of the malted grain itself, is a hard, white, tasteless, solid substance obtained by digesting the germinated grain in water and alcohol, then pressing and filtering.

MALTED MILK, milk combined with extract of malted grain—generally of malted barley and wheat—reduced to a powder by the vacuum process. It is used to make numerous pleasant and nourishing beverages—mixed with milk and variously sweetened and flavored (as with chocolate or vanilla); added to broths, etc., for invalids, and in many other ways.

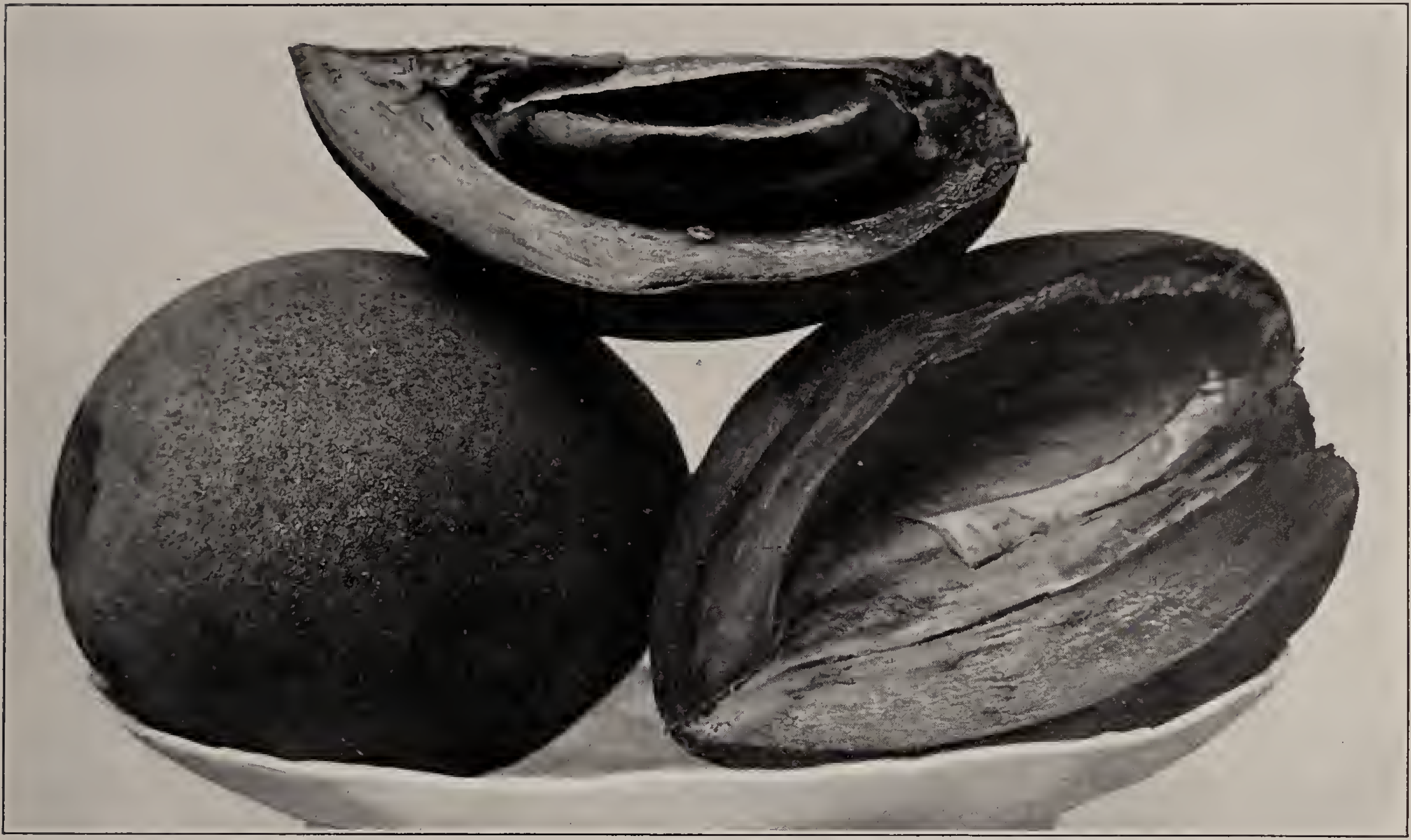
MALT-EXTRACT, a sirupy liquid, nutritious and invigorating, obtained by the maceration and digestion of malt, generally barley malt, followed by filtration and concentration—at a low temperature, or in vacuo, in order to preserve the diastase enzymes of the malt. It should contain 50 to 55% of maltose, or malt-sugar, about 5% protein, and about 2% diastase. Malt-extract in moderate quantities—a tablespoonful or two at a time—is, to many people, a pleasing way of increasing the carbohydrates in the diet.

MALTOSE, or Malt-Sugar, a dissaccharid—i.e., a sugar of the same class that contains both ordinary sugar and milk-sugar. In the human digestion, it is formed from starch by the action of the saliva and pancreatic juices, passing next into Glucose (which see). It is the principal ingredient of malt-sirup, malt extract, and corn-sirup. Commercially, it is a white, crystalline product obtained by the action of malt or diastase on starch (in this country, commonly cornstarch) with or without the preliminary step of a brief immersion in an acid solution.

MALT-SIRUP, a product made by the same process as commercial Maltose (see preceding), evaporation being checked at an earlier stage. If carefully refined, it is an agreeable, mildly sweet product, without any malt flavor, which may be used in any way in which Corn-sirup (which see) is employed. It consists essentially of maltose and dextrin. It is advocated as dietetically preferable to corn-sirup.

MAMMEE, or Mammee-apple, or St. Domingo "apricot," or South-American "apricot," the fruit of a large and very beautiful tree of the American tropics. It is generally round, with a diameter of three to six inches, its thick leathery rind of russet color, and its flesh bright yellow and juicy. The rind and the one or more large seeds are bitter, but the flesh is aromatic and pleasing, both raw and preserved, especially in the latter form. Its flavor suggests the apricot.

MAMMEE SAPOTA, or Mammee, or Sapota, a large, generally oval, fruit of the sapodilla group. Good specimens average a pound and upwards in weight. The skin is coarse in texture, and light coffee-colored and granulated in appearance; the flesh is yellow or salmon-crimson, a good deal like that of a soft muskmelon in texture, and enclosing one, two, or three long, generally shiny-black, seeds.



Mammee sapotas (about half the length of fair specimens)

MANATEE, or Sea-cow, a large herbivorous mammal which looks like a long wrinkled seal, formerly plentiful in the rivers of Florida, the West Indies, Mexico, and Central America; as heavy as a cow, and with flesh white, tender, and excellent in flavor—much like that of a good veal cutlet. Some compare it to young pork.

The manatee served the old-time buccaneers for fresh meat, and the female was perhaps one of the original "mermaids," for the manatee face is a grotesque caricature of the human face, and the flipper-shaped fore-limbs are used as arms and hands. A manatee, half out of the water, holding her young by her flipper and suckling it at her breast, might well be taken for a "beautiful mermaid" by the rum-soaked mariners of a bygone age, but Columbus thought their appearance not so charming as he had been led to believe!

The protection and breeding of the few of the creatures still found in Florida waters would be a laudable enterprise, as a largely self-sustaining addition to our meat supply. Their principal food is the under-water "manatee grass," which is rich in nitrogen.

MANGO (see the color-page opposite), a fruit believed to be native to tropical Asia, now grown in nearly all sub-tropical and tropical countries and found in many different shapes, sizes, and colors. The kidney-shape is the form most generally seen, but some are nearly round and others long and narrow, either crooked or straight. The size runs from a little larger than the biggest plum up to a weight of four pounds or more. The color may be red, green, or yellow—yellow or reddish-yellow being the most common.

The quality varies as greatly as the other characteristics. The seed-stone of inferior grades is large and the flesh has so strong a flavor of turpentine and is so fibrous as to be of very little value, whereas in the best types the fiber is a negligible quantity and the stone is surrounded by a large mass of delicious, juicy, aromatic, generally orange-yellow pulp, which many consider the choicest of fruit offerings.

A mango-tree

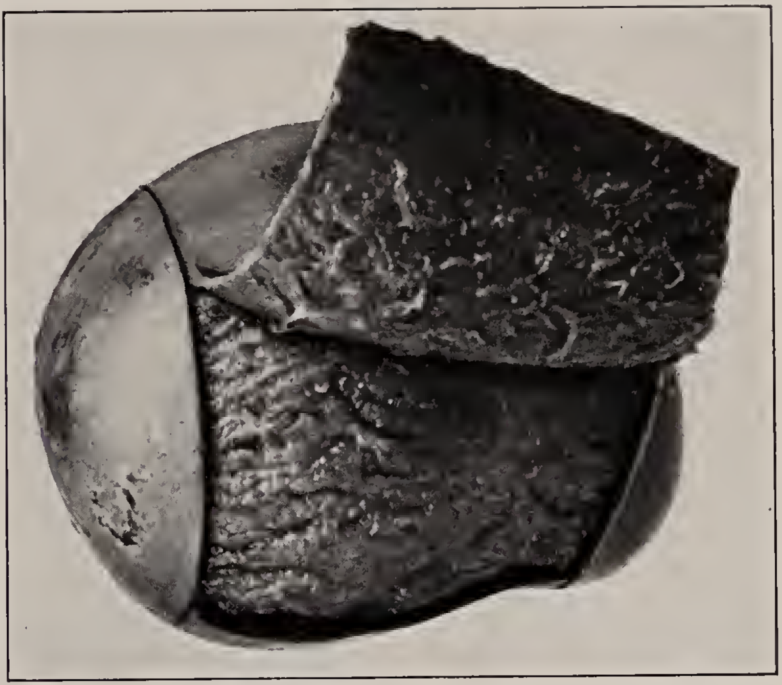
In addition to its use as a fresh fruit, the mango forms the basis of most East-Indian chutneys and is also canned and otherwise preserved. Unripe fruits are generally taken for making CHUTNEY (which see).

A majority of the mangoes imported until quite recently were of the poor, fibrous kinds—which compare to properly cultivated varieties as a crab-apple to a Spitzenburg!—but there is to-day a constantly increasing supply of the choice fruits. The principal season is from April to the end of June — the fruit from Mexico, the West Indies, etc., arriving first, to be followed soon after by the Florida crop.

A little practise is needed to acquire the art of eating a mango gracefully yet without losing any of its aroma.

The fine fiberless varieties are the most easily eaten. Such fruit is best prepared by cutting through the skin and turn-

Two Types of MANGOES



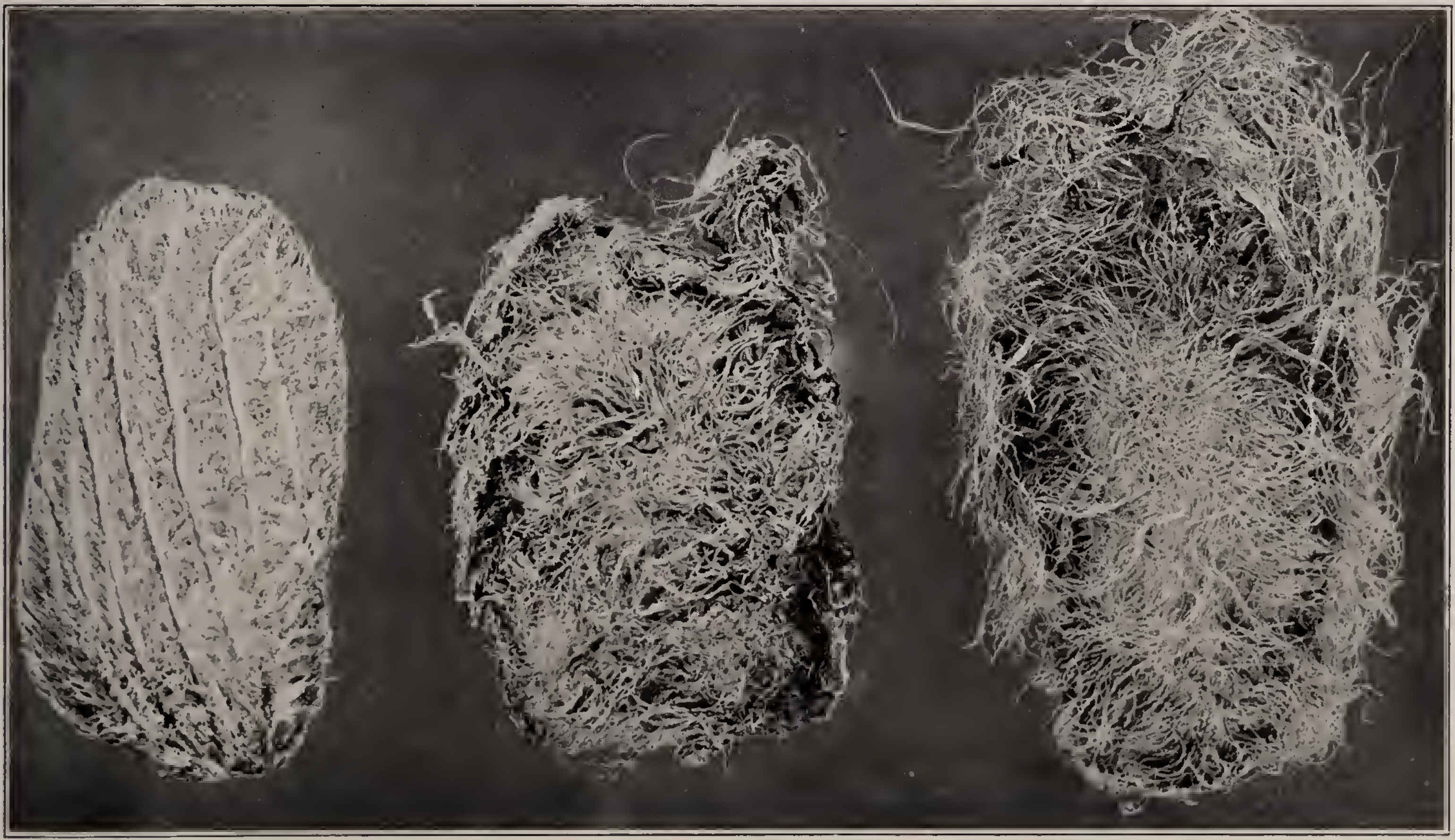
The best way of preparing a fine mango for consumption

ing it back in a broad band, as shown in the accompanying illustration, or by making an X cut on each side, peeling the corners back as far as possible, and temporarily laying the skin in place again to prevent the aroma from escaping. The pulp can then in either case be eaten with a spoon, like a muskmelon, turning the skin back as necessary.

A third method sometimes employed, but requiring considerable deftness and only appropriate for immediate service and consumption, is to halve the fruit lengthwise with a sharp knife, remove the stone, and serve the two halves as one would muskmelon.

With a less delicate specimen, a better way is to cut the skin in a circle around each end and make seven or eight lengthwise incisions from circle to circle. The skin can then be readily lifted in strips and the flesh cut off in sections, lengthwise, as one eats, or just before eating.

To slice a mango and let it stand before serving, as is customary for peaches, is to lose much of its delicate flavor—and to try to eat it out of hand as you would tackle an apple is to wish you had gotten into a bathtub to perform the operation!



The seed of a mango of fine quality —the fibers reduced to a short, felt-like covering

The seed of a fruit of medium grade —the fibers long enough to be somewhat objectionable

The seed of a common wild mango, with fibers running through the entire pulp

MANGO-MELON, or Orange-melon, or Vegetable-peach, a small, round melon (*Cucumis melo,* var. *Dudain*) with yellow skin, and white or pale yellow flesh, not edible raw but cultivated for domestic "mango pickles" and preserving. It is also eaten as a vegetable, sliced and cooked like eggplant.

"MANGO PICKLES," a popular domestic title for pickled stuffed young melons (preferably mango-melons), peppers, or cucumbers.

MANGOSTEEN (see the color-page of TROPICAL FRUITS facing 244), the fruit of a tree native to the East Indies, distinguished by long, oval, leathery leaves and a flower like a single rose. Many travelers award it the title of "the world's choicest fruit." It is generally about the size of a small to medium orange, and in exterior appearance slightly suggests the pomegranate. Its juicy, rose-tinted or creamy pulp is divided orange-style and is enclosed in a thick, soft rind. Its flavor, best uncooked, is sweet and slightly tart—enthusiasts say that it combines all the good qualities of the pineapple, grape, peach, and strawberry! The tree is cultivated in the West Indies, though not yet on a large scale. Its commercial possibilities seem good.

MANGROVE, the sweet and pleasing fruit of the common mangrove, which flourishes along muddy coasts and tidal estuaries of the tropics of both hemispheres. The mangrove, like the banian, is distinguished by the arched adventitious roots sent down by trunks and branches—these taking root and sending up new trunks—and by the air-openings in root-branches projecting above the surface through which air passes into the roots embedded in the mud.

MANIOC, or Bitter Manioc, or Cassava, a large, woody, tropical plant botanically known as *Manihot utilissima,* whose roots furnish cassava-starch. It is variously known in the West Indies and South America as manioc, mandioca, cassava, and cassada (as well as by various other titles), and as "ubi tanah" in Java and the Malay Peninsula, the principal United States sources. The roots range in diameter from one and a half to eight inches, and in length from eighteen inches to four feet, growing in clusters which average from five to ten pounds each and often reach thirty pounds and upwards.

The Minute Tapioca Co.

The manioc-plant

Cassava-starch, or flour, or "Brazilian arrowroot," is utilized industrially in many ways—in the manufacture of compressed yeast; as a sizing material; in the textile industries; for glazing twine; and as a laundry starch—but its chief interest to the average person is as the product from which tapioca is made (see TAPIOCA).

The root is an important native food in several tropical countries. In South America, a meal obtained by drying and grating is baked in thin cakes which are both nutritious and agreeable in flavor. An interesting fact is that no water is

The Minute Tapioca Co.

Manioc roots

added to the meal, sufficient adhesion being secured by the softening of the starch particles in baking.

The raw roots generally contain hydrocyanic acid—the quantity in some varieties, seasons, and regions is sufficient to be fatally poisonous—but this is readily dissipated and rendered harmless by cooking the root or its meal, or by sun drying, or is commercially expressed with the juice. The juice gives CASSAREEP (which see).

The root, cut in cubes, and put up in sirup, is occasionally seen in fancy grocery-stores in this country. It is a rather pleasing preserve, resembling preserved chestnuts.

Both the bitter manioc of this article and the nearly related sweet cassava (*M. dulcis,* var. *Aipi,*) are cultivated to a limited extent in Florida and other southern states.

MANNA, a sweetish substance obtained from the manna-ash (*Fraxinus ornus*), native to the mountainous parts of southern Europe, by making small incisions in the bark of the trunk and permitting the oozing juice to harden. It is also exuded to some extent without human aid as the result of the punctures of a cicada. Its chief component, known as mannite, is the same that furnishes the sweetness of celery and of some seaweeds. The commercial product comes almost entirely from Sicily, the best quality being known as ''flake manna.'' Its principal use is as a mild laxative for children.

There are many other ''mannas.'' That which tallies best with the manna of the Bible is a substance found on the small branches of the tamarisk shrub of the Sinai Peninsula, Arabia, Persia, and elsewhere. During June and July it exudes in honey-like drops which harden into a semblance of grain during the cold of the night and early morning. It is sweet but it contains no mannite. A popular Persian confection is made by kneading this manna and wheat-flour into a thick paste.

The ordinary modern commercial manna-bread is made of rye-flour, honey, and sugar, sprinkled with poppy-seed or coriander-seed, etc.

The name ''manna'' has also been applied to numerous special food preparations.

MAPLE-SIRUP and MAPLE-SUGAR, the evaporated sap of several varieties of the maple-tree, native to North America. The two most important are the Rock maple, distinguished by its very light grey, almost white bark, and the Black maple, less dense in growth and with black bark. Both of them are handsome, vigorous trees, fifty to sixty feet in average height, large specimens exceeding 100 feet. Between seventeen and eighteen million trees are annually tapped in the United States.

The principal producing states are Vermont, New York, Ohio, and Pennsylvania. The sugar industry is everywhere losing ground, but the sirup output is increasing in both Vermont and New York. The "sugar groves" are either natural forests in which the maples predominate or man-set plantations. In the former, human assistance is confined to the elimination of old trees and over-numerous saplings.

The sap is collected by tapping about three feet from the ground. The tap-hole is bored from one to two inches deep with a three-eighths inch, or slightly larger, bit; the spout is driven into this, and a sap-bucket is hung on the spout. It is the wood immediately under the bark which gives the sap, the largest amount coming from the ring made by the growth of the tree during the preceding year.

The gathering season commences during the latter half of February, or the first part of March, just as the winter is breaking up and the general rule is thawing days and frosty nights. It ends when the trees begin to bud, for at that time the sap undergoes a change and the sugar content decreases.

The percentage of sugar commonly varies from 1% to 4% (up occasionally to so high as 10%). It is affected by many circumstances—the variety of the tree, its virility, its location, the soil, the climate, and the character of the season. There are generally three or four "runs" during a good season, the first being usually the sweetest, averaging from 3% to 4% of sugar. This first sap is water-white and transparent—it consists of almost pure sucrose and water. Each succeeding run is usually less sweet and less clear.

The quantity of sap depends to a great extent on the growth of the tree during the preceding summer and the weather conditions during the tapping season. The average net product is about three pints of sirup to the tree.

After its receipt at the boiling-house, the sap is (or should be) immediately evaporated to the desired consistence—stopping the cooking early if *sirup* is the final result desired and continuing it longer if *sugar* is to be made.

The evaporators vary in size according to local requirements. An evaporator three feet wide by ten feet long will handle the product from three hundred trees.

The color and flavor of both sirup and sugar depend largely upon the methods of collection and evaporation. If the sap-buckets have been kept clean and the sap has been promptly collected and is then evaporated quickly and carefully with modern equipment, the sirup will be light yellow and the sugar yellowish-brown and firm, and both will be delicate in flavor. Under other conditions, they are liable to be dark and coarser to the palate, and the sugar may, further, be mushy. It must be added that a good many people prefer the coarser flavor!

Maple *sap* sirup is the sap reduced to sirup consistence as noted above.

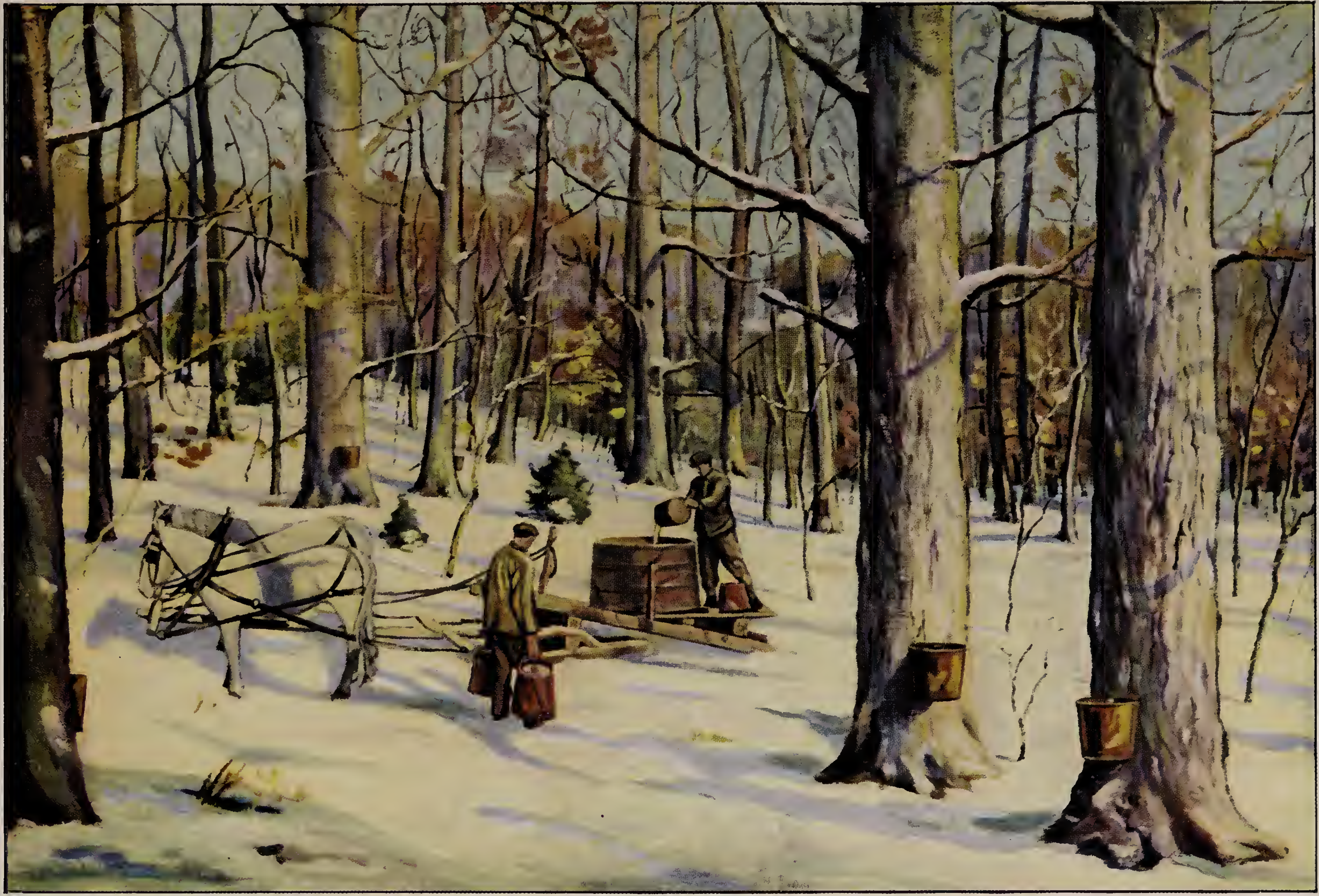
Maple *sugar* sirup is a solution of maple-sugar.

"Maple sirup" may be either of these.

"Hard" and "soft," as descriptive of the sugar, are self-explanatory. Pieces of the latter type quickly dissolve in the mouth. "Tub" sugar is a soft sugar run into cans or tubs. "Grain," or "stirred," sugar, is a different product, resembling ordinary commercial brown sugar, though being (as a rule) rather more lumpy. It is made by frequent stirring during cooling and crystallization.

"Maple-sugar cream," or "maple butter," is obtained by especially rapid cooling after the necessary concentration. It is smooth, thick, and very mild-flavored, much enjoyed by children on bread and butter, etc., and useful in layer-cake making. As part of its sirup separates on standing, it should be well mixed before using.

Maple-sirup should be stored in a dry, *cool* place of even temperature. Freezing temperature should be avoided, as it tends to crystallization. Maple-sugar is best

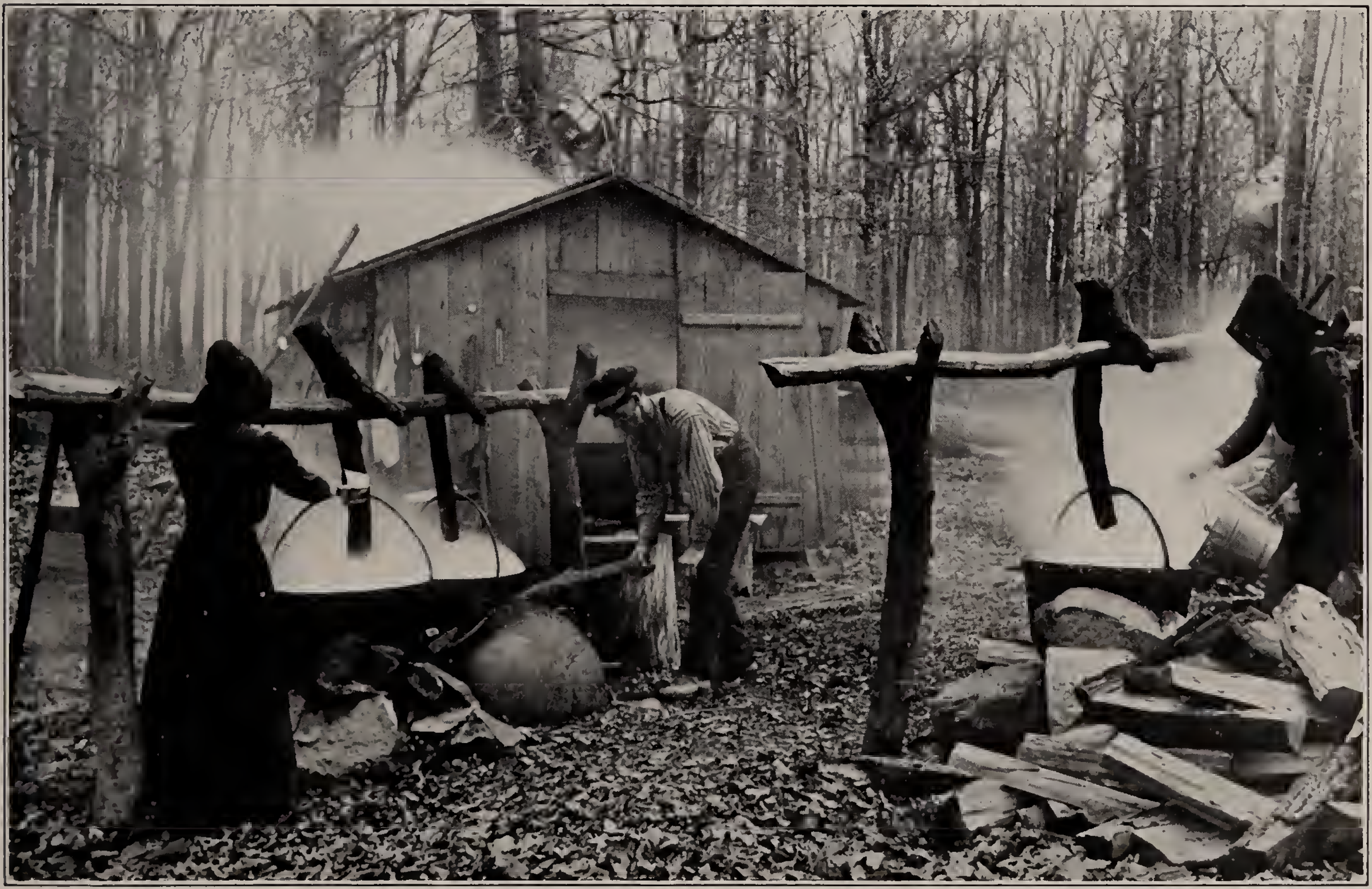


COLLECTING THE SAP OF THE SUGAR-MAPLE

stored in a dry, *warm* place of even temperature. A moist atmosphere is particularly detrimental, softening it and often producing moldiness.

Maple-sugar making now, and maple-sugar making as it used to be, are very different things. The industry has gained in facility and efficiency, but it has lost in picturesqueness. The old-style camp with its primitive plant is no more. The kettle has long been superseded, and the trough has become a mass of crumbling decay.

The sap was collected then in troughs, each about three feet long, hollowed out of sections of poplars, and was conveyed to the kettles in barrels, from which it was transferred by scoops. There were five or more kettles, from ten to thirty gallons in capacity, and each was filled with sap and kept at the boiling point, the larger kettles being filled from the smaller as evaporation reduced the contents. When the sap was sufficiently reduced, the hot sirup was dipped out and passed through a flannel strainer into uncovered tubs, from which it was again poured into a large, thick-bottomed kettle for the process of ''sugaring off,'' some milk and the whites of several eggs being added to it. Thus prepared, it was placed over a slow fire, and kept below the boiling point for a while (the scum being removed from time to time), presently becoming temptingly translucent. It was then exposed to a greater heat and gently boiled, the evaporation gradually bringing it to the point of granulation. Then the sugar-maker became all watchfulness, and it fared ill with those who distracted him, for if the golden liquid seething in the kettle boiled the least bit too much, it would become too dry, and if it boiled too little, it would be ''soggy.'' He tested it constantly, plucking threads of it from his stirring-



International

Farm manufacture of maple-sugar in the old-fashioned way stick, and trailing them around in cups of cold water. While the threads yielded waxily to the touch, the sugar was not yet ripe; but as soon as one broke crisp between his fingers, the moment had come to take the kettle off the fire. As the sugar cooled, it crystallized round the sides, and gradually the whole mass, under a vigorous stirring, became granular.

In that way was maple-sugar made years ago, and when the sap flowed profusely the operations were continued through the night and the fires cast strange shadows in the woods. But to-day everything is "improved." In place of the hut of logs is a permanent boiling-house, furnished with many elaborate devices to prevent waste and deterioration. The sap collections are made with letter-collection regularity and if the grove is on a hill and the boiling-house is in a hollow, the sap is emptied into a "flume," down which it flows into a large reservoir within the building. A scoop or ladle is as anachronistic as a javelin!

To the average consumer of this twentieth century, maple-sugar is a confection, a delicacy. In early colonial times it was in many sections the chief, and often the only, sugar of the family table.

MARGARIN. See Nut-butter and Oleomargarin.

MARIGOLD. Several marigolds have played—and still play—their parts in food preparation. First must be noted the Pot Marigold (*Calendula officinalis*), the "winking Mary-bud" of Shakespeare, whose yellow flower-heads may be used for flavoring soups and stews and whose flower-buds, pickled in salt and vinegar, are a good substitute for capers. Next comes the Marsh Marigold (*Caltha palustris*)—called "cowslip" in the eastern states—its young leaves making acceptable greens. Third is Sweet-scented Marigold (*Tagetes lucida*), with green parts resembling tarragon in flavor and used in the same ways.

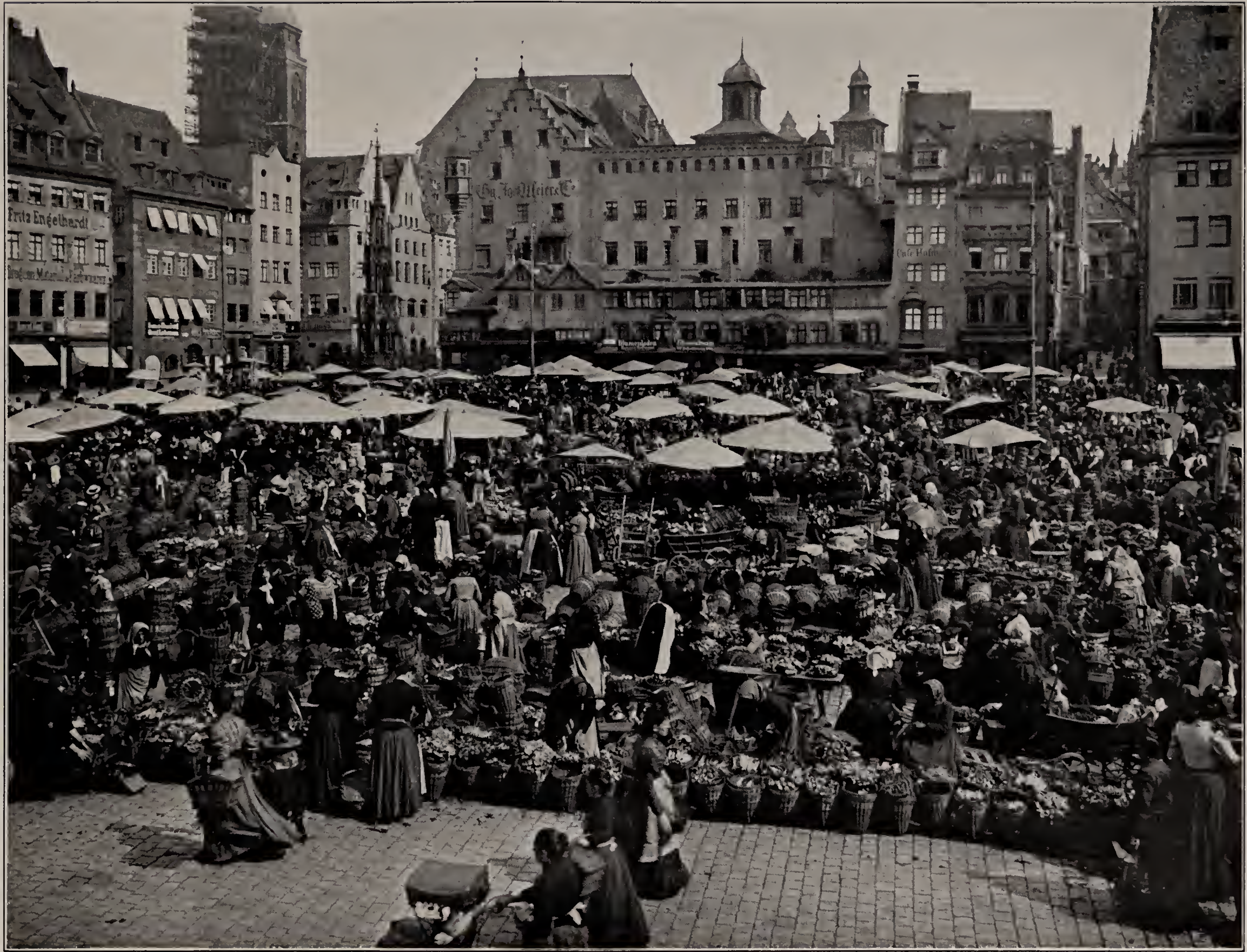
MARINADE, pickle liquid, generally flavored (as with aromatic herbs and spices), used in the kitchen for the immersion of fish and meats before cooking. The term is best applied to pickle liquids with vinegar or lemon bases, but is also extended to brine.

MARJORAM, an aromatic sweet herb whose tops and leaves, fresh and dried, are used to flavor soups, dressings, etc. They are cut as the plants begin to flower. There are numerous varieties, the most desirable being the Sweet (or "knotted"), Winter Sweet, and Pot.

Common, or wild, marjoram is found in many parts of the country in the open fields. It resembles the cultivated but is coarser in flavor.

MARKETS. Public markets and fairs are closely allied as links which help to connect our modern civilization with the early history of the human race. Their origin is found in the first concerted attempts at commerce, and their initial history antedates the oldest records. Furthermore, the essential principles of the earliest markets—and also, probably, many of the details of their operation—were not unlike those of the great modern markets of Continental Europe.

The employment of the terms "market" and "fair" overlap at many points and in general usage. In the forms most intimately associated with the field covered by this volume they are best differentiated by applying the word



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A market day in Nuremburg, Bavaria

"market" to a public selling-place continuously open during all, or a considerable portion of, the year and devoted chiefly to the sale of provisions. The term "fair" (setting aside the modern American use of the word to signify a combined exhibition and group of amusement enterprises rather than a place of exchange or sale) may then be specialized to signify a public selling-place open only for a limited time, either for a single offering (as the "goose," "cattle," and other fairs of the United Kingdom) or for all classes of commodities—clothing, jewelry, and many other articles in addition to provisions—as the periodic fairs which constituted so important a feature of life during the Middle Ages, and the famous modern fairs at Leipsic, Irbit, Irkutsk, Nizhni Novgorod, and elsewhere, at which European and Asiatic merchants and traders come together to traffic in a long list of articles, their booths and other appurtenances at the Russian fairs often, in normal times, covering several square miles.

The recognition of the desirability of a common interchange of goods seems to be instinctive among all races. When the Aztec country was disclosed to European eyes by Cortez' victorious invaders, it was found that the greater part of the trade between city and country and the bulk of the retail business of large communities were transacted in markets and fairs. And Stanley came upon fairs of periodic or continuous operation in parts to which no white man had ever before penetrated, the natives journeying to them from considerable distances to exchange goods.

Porters of the Halles Centrales, Paris—the one in the foreground carrying baskets of fruits

The public market was in former generations a noteworthy feature of American life, but changes in social and commercial conditions bade fair to banish it, in its original significance, into the limbo of things gone by. There became fewer and fewer communities in which the free open market-places were patronized by the general public—and, finally, none with covered markets to which the general producer had access, the stalls of those still in operation being occupied by tenants much in the same way as are ordinary stores. The wholesale or commission merchant, together with the retailer, had absorbed the market's place in public service.

Recently, however, the market where producer and consumer can meet has been revived and has assumed importance in many parts of the country.

The finest markets in the world are those grouped in the Halles Centrales of Paris—ten large halls, covering a total of 365,000 square feet and divided according to the character of the supplies. About one-third of the space is devoted to wholesale and the remainder to retail purposes. Lining the thoroughfares between the halls—some of the spaces open and some covered—are stands for fruits, vegetables, flowers, etc., and underneath are cold-storage cellars for the use of producers on payment of a small fee. The annual sales reach large figures—an average of 100 million pounds of meat, 50 million pounds of poultry, 70 million pounds of fish, 50 million pounds of butter and cheese—and other articles in proportion.

The Halles Centrales retain the first feature of the market or fair in that the producer and consumer are brought in direct contact. There are a great many permanent tenants, *titulaires de places fixes,* as in English and American markets, but in Paris they have no exclusive possession—ample space is reserved for all occasional or periodic vendors—any producer who desires may occupy space and sell his goods by conforming with the regulations and paying the very moderate fees. If he cannot spare the time to come into the city, he can ship his goods to any of the official salesmen, to be disposed of at auction, the only charge being a small commission on the sales. These salesmen are appointed by a municipal official and their methods are rigorously inspected and controlled.

Numerous smaller markets in other parts of the city supplement the service of the Halles Centrales.

The famous old Butter Market at Cork, Ireland, is another institution worthy of mention as one of the best regulated of its kind. All the butter exposed for sale is tested, in bulk and without any name attached, and branded First Quality, Second Quality, etc., by a market committee whose members also belong to the Common Council. No favoritism can be shown, as the committee are ignorant of the ownership of the butter they inspect. Merchants residing in any part of Great Britain can forward their orders for so many packages of certain qualities to local brokers, who buy on the market, charging the purchasers a commission of about fifty cents for each one hundred and twelve pounds—the fee being regulated by the same committee. On the following day, the prices of all qualities are published in all the morning papers of Great Britain, the grocer being thus informed of the correct price of the quality he buys.

MARMALADE, a semi-liquid preserve, typically of thick-rind, acid or bitter fruits such as bitter oranges and grapefruit, made by boiling the pulp or juice with portions of the rinds. The most popular is that of oranges—the Seville, or bitter, orange being employed for a majority of the best products. In domestic preserving, the desired bitter flavor may be obtained by blending grapefruit or lemons with ordinary sweet oranges.

The title ''marmalade'' is also used for various jams rendered tart by the addition of lemon juice, as ''apple marmalade''—and, occasionally, without any reason or justification, for an ordinary sweet jam. Such misuse of words confuses the mind and robs language of accuracy and intelligibility of description.

In the commercial manufacture of orange marmalade, the fruit is first prepared by removing the eyes, washing in large tubs, and halving and pulping by machinery.

After the separation of the rind and pulp, the latter is placed in machines which express the juice, and the rind goes to the cutting machines, where revolving knives slice it into thin rings and drop it into vats of cold water, which, as filled, are boiled by means of the steam coils in the bottom of each vat.

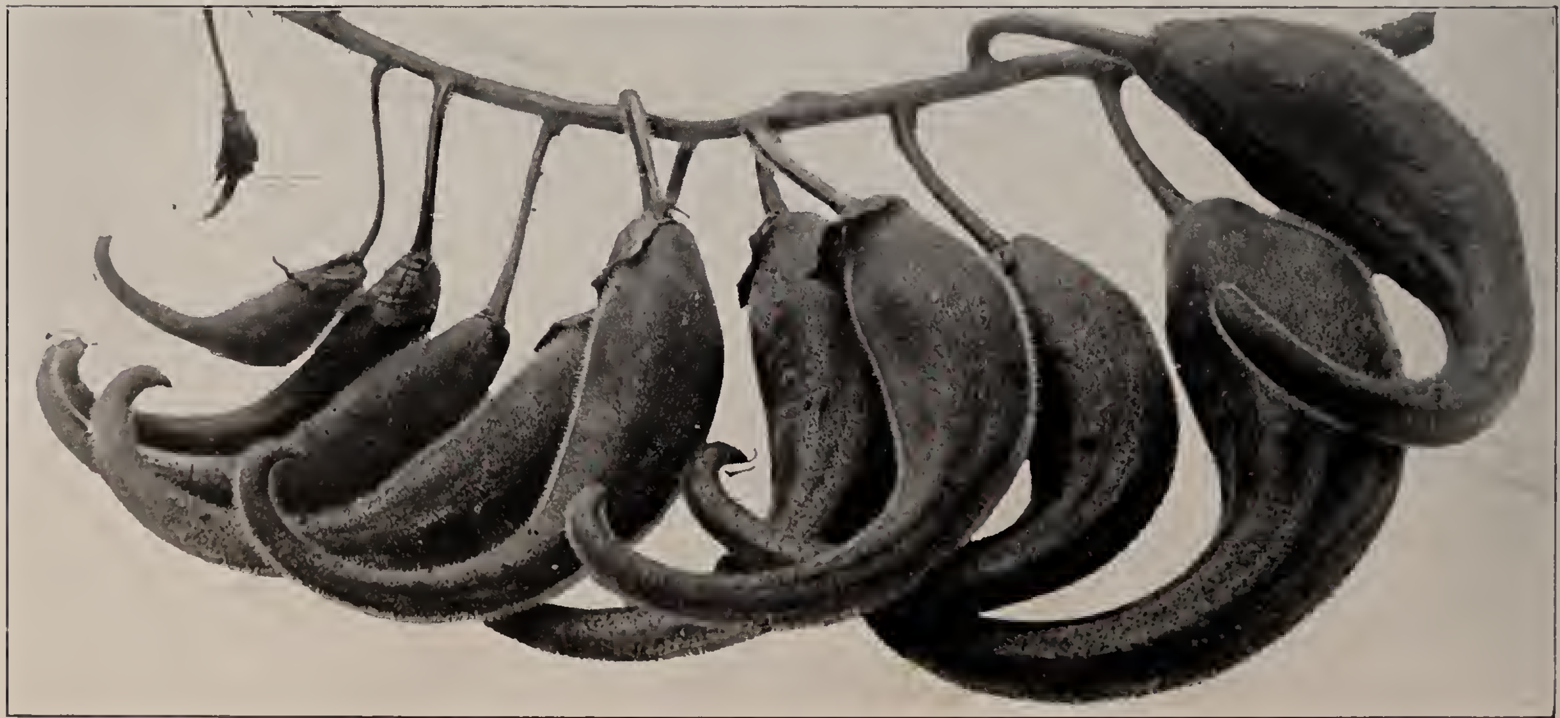
Peel and juice next go together into huge copper pans, half full of thick sirup of white sugar and corn-sirup, and are boiled until the desired consistence has been reached. This process requires both care and experience, for if the fruit is over-boiled, the sirup may crystallize, and if under-cooked, the product will mold.

The first record of the use of marmalade is found during the reign of Henry VII, the original "marmalade" having been made from the quince, the Portuguese name for which is *marmelo*.

MARRON, a large chestnut extensively cultivated in France and Italy. It is best known here in preserved form, either bottled in sirup or "iced" dry (in the latter case being known as *marrons glacés*), and is used in the making of various frozen and other fancy desserts, and in fruit salads.

MARSHMALLOW, a tall, erect plant, cousin to the hollyhock, native to both Europe and Asia, which grows most freely in marshes near the sea. A decoction of the roots and other parts gives a tasteless, colorless gum, used in the manufacture of mucilage, and medicinally as a demulcent for children. Candy "marshmallows," originally made from it, are now of sugar, corn-sirup, and gelatin.

MARTYNIA, or Unicorn-plant, a branchy plant, native to the central western states, whose seed-pods, four to six inches long at maturity, are distinguished by their long, curved hooks. The young pods are pickled in the same way as cucumbers.



Martynia-pods

MARZIPAN PASTE, or Marchpane, a paste of sweet almonds and sugar used in the manufacture of fancy cakes and pastry novelties, and molded into divers shapes for sale separate or mixed with high-grade candies, etc. As formerly made, various nuts were utilized, baked in a cake of sugar and egg-whites.

MASKINONGE. See under its more generally accepted title of MUSCALLONGE.

MATÉ, or Paraguay Tea, the leaves and young shoots of a species of holly, *Ilex paraguariensis,* used almost universally in Brazil and extensively in other parts of South America for the brewing of a beverage which corresponds to the "tea" of other countries. The gathering, roasting or drying, and pulverizing and breaking of the leaves and shoots is an important industrial occupation in both Brazil and Paraguay. The dry maté is greenish-yellow, and with an aroma somewhat suggestive of green tea. The finest quality is made of the newly opened leaf-buds; a lesser grade of the larger leaves with the midribs removed; and the general, cheap product of the whole large leaves. The supply is obtained both from wild and cultivated bushes.

Loads of green maté

The title "maté," now generally used both for the dry tea and the beverage, was applied originally to the vessels in which the tea is infused by South-Americans. These vessels, or bowls, are usually dried gourds, which in many cases have been carefully developed into a variety of curious forms. A small quantity of the tea, formerly styled *yerba maté* (or *herva maté,* or *yerva do maté*), is put into the gourd, and it is then filled with boiling water or milk. A little lemon juice or burnt sugar is sometimes added when (as usually) water is used. Each person holds a small tube called a "bombilla," and with this he sucks up the infusion and passes the bowl back to be re-filled for the next guest. One end of the bombilla is finished with a small bulb of delicate basket work or perforated metal which acts as a strainer to prevent the powder or other particles from being sucked up into the mouth. The beverage is served very hot—much too hot to be generally pleasant for novices! The flavor is a good deal like that of green tea (though a little more bitter) and the taste for it is readily acquired by most people.

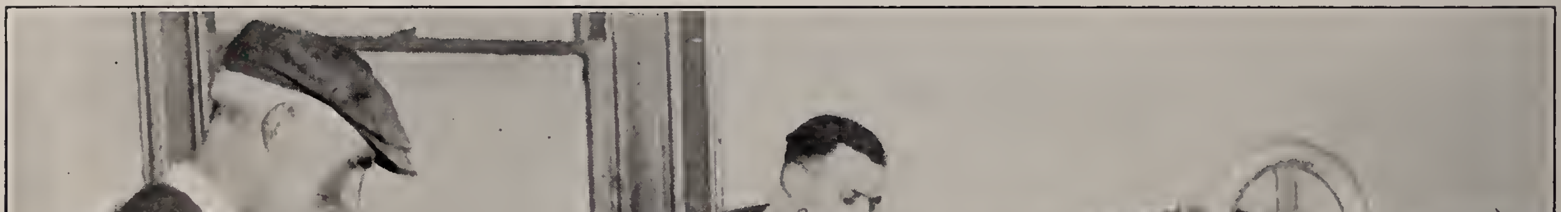
Outside of South America, maté is generally prepared like tea—freshly boiling water is poured on and allowed to steep for about five minutes. The quantity of dry maté used is the same as of tea. It is also drunk in the same ways—hot or cold, with or without sugar, and with milk or cream or lemon.

The chemical composition of the dry maté very closely resembles that of tea and coffee. It contains the same stimulating principle (caffein), but the proportions both of it and of tannin are those of coffee rather than tea. The result is that the beverage, being made like tea (i.e., with a smaller quantity of the dry product than if coffee were being brewed), contains less caffein and tannin than either tea or coffee. The effect on stomach and digestion is very similar to that of tea.

To travelers, maté offers the additional advantage that it does not so readily lose its flavor as does tea when exposed to the air or dampness.

An average of more than 120,000,000 pounds are exported annually from Brazil, and 5,000,000 pounds or so from Paraguay, to other parts of South America. It has recently commenced to find also a modicum of favor in this country and Europe.

MATZOTH, the most familiar modern form of unleavened bread, i.e., bread made without the use of yeast, baking powder, or any other raising agent. Matzoth contain no ingredients other than flour and water, and as made to-day are generally



International

Rolling out matzoth dough

in the form of large, round or square, thin, brittle crackers, or biscuits. Originally, instead of being in cracker style they were baked four inches thick. They are made in large quantities for the Jewish Passover, to be eaten both plain (in place of ordinary, or leavened, bread) and cooked in various ways. In some parts, especially in our larger cities, there is a considerable consumption of matzoths by non-Jewish people who have found them excellent as "tea biscuits," to be spread with butter or honey, etc.

MAW-SEED, a title frequently applied to Poppy-seed (which see).

MAY-APPLE, an egg-shaped, yellowish, fleshy fruit, about two inches long and enclosing numerous seeds, borne by the *Podophyllum peltatum,* a woodland herb commonly known as the "American mandrake." The latter title is unfortunate, as the mandrake proper, a plant growing in Mediterranean regions, is poisonous, and the connection of names has resulted in the may-apple also being popularly so considered—quite incorrectly, for it may be eaten freely with impunity and deserves to be more generally known and used. It is not particularly choice as a fresh fruit. but it makes very good marmalade. Its general colloquial name of "may-apple" and others such as hog-apple and wild lemon have also been poorly selected—it does not look like an apple nor taste like a lemon.

MAYONNAISE, a sauce or salad dressing composed of raw egg yolks beaten up with olive oil to the consistence of thick cream and flavored with vinegar, mustard or lemon juice, etc.

MAY-POP, the fruit of a species of passion-flower vine, growing wild in the South. It is oblong, two inches in length or thereabouts, and yellow when ripe. It is also known as "may-apple," but that title is more generally applied to the fruit of the "American mandrake" (see May-apple).

MEAL, any kind of grain coarsely ground, such as cornmeal and oatmeal, described elsewhere under their respective headings. It is also applied to unbolted wheat-flour.

MEALIE, the South-African name for Indian corn. It is generally used in the plural.

MEAT. In no one thing has the general consumer gained in recent years more than in the matter of fresh meats. It is only a comparatively short time ago that residents in small towns and country districts were dependent for fresh meat on an uncertain and fluctuating supply from the occasional or periodic slaughtering of one or two animals by local butchers—the result being that dried or salted meats were the mainstay of a large percentage of the population. To-day, owing to the many improvements in transportation, the invention of refrigerator-cars, and other commercial developments, fresh meat can be obtained all the year round even in the most remote parts.

The correct temperature for the meat refrigerator or cooling room is a trifle *above* the freezing point—the result being "chilled" meat, which will remain in prime condition for a long time. Freezing, or placing the meat in direct contact with ice, results in loss of flavor. When meat has been frozen, it is best not to thaw it until near the time of actual use, as (after thawing) it spoils more easily than chilled meat.

The housewife who in warm weather finds that her meat has become tainted, can restore its freshness by cutting off the fat and throwing it away, and washing the lean in a solution of borax or bicarbonate of soda and cold water—a teaspoonful to a quart—and then rinsing with fresh water.

A summer household preventive of taint is to wash all meat as received in vinegar or to rub it over with salad oil.

Meat should be allowed to hang for some time before it is consumed. Otherwise it will usually be tough—perhaps exceedingly so. It should also be carved across the grain—by thus cutting through the fiber tubes it is rendered more tender and flavory.

See also the articles on FOOD VALUES, BEEF, LAMB, MUTTON, VEAL, etc.

MEAT EXTRACT, JUICE, POWDER. See BEEF EXTRACT, BEEF JUICE, BEEF POWDER. Similar products are made from the flesh of other food-animals but they are of minor importance.

MEAT PASTES. See the article on POTTED AND DEVILED MEATS.

Medlars

MEDLAR, the roundish, open-topped fruit of a small tree or shrub, widely grown in Europe but little known here, which has the unusual characteristic that it is not edible until well *past* the ripe stage. The pulp is hard and bitter when ripe, but is tender and of an agreeable subacid, rather astringent, flavor when it "blets," or commences to decay. This is, in natural course, the sequence of its touching by frost. For home use, the fruits are generally gathered as soon as possible after the frost has nipped them and laid away to await bletting in a cool, dry place. The several varieties range from one to 2½ inches in diameter.

Medlars are eaten both raw and cooked. The juice of the raw fruit makes an excellent cold drink, and the flesh, cut up, is a pleasing addition to many mixed fruit and other beverages.

The "Japanese medlar" is the LOQUAT (which see).

MELON. As known in the United States, the common edible melons, other than watermelons, are roughly divisible into two groups—"summer" muskmelons, or "cantaloupes" (varieties *reticulatus* and *saccharinus,* or "pineapple") and "winter" melons (chiefly of the variety *inodorus*)—all of *Cucumis melo.* WATERMELONS, as also CITRON-MELONS, both of *Citrullus vulgaris,* are treated in their alphabetical positions.

In Europe the title "cantaloupe," instead of being (as here) practically interchangeable with "muskmelon," is applied specifically to melons of a distinct variety of *C. melo—cantalupensis* (also known as "rock-melons")—similar in flavor and odor but with hard and warty rinds. They are seldom grown in the United States.

Muskmelons, or Cantaloupes

Our muskmelons, or "cantaloupes" (the title "cantaloupe" particularly applied to the smaller, or "basket," forms), are nearly all of the "nutmeg," or netted, class (the net varying from a complete cover to scant traces), more or less musk-scented, generally ribbed, round to oval, of various colors of skin and flesh, from small to ten pounds or more in weight, soft-shelled, and readily perishable. Market styles are constantly changing, for the crossing of varieties has worked many transformations and all the offspring have proved fertile.

The choicest large fruits generally marketed are the Montreal and the Golden Queen. The former derives its name from its original, highly specialized cultivation near Montreal, Canada. It is nearly round, has a dark green skin heavily covered with coarse netting, and thick, light green flesh. Big specimens have reached a weight of fifteen pounds. The Golden Queen is round, ribbed, and with an average weight of six to eight pounds; its skin yellowish or light green, and usually roughened, with little or no netting. The flesh is of a salmon tint or greenish shading to red. It is grown chiefly in northern New York and parts of New England.

The most famous of the small or medium-sized is the green-fleshed Rocky Ford. A choice specimen should be about five inches long and a little less in diameter. The silver-grey netting should stand out like thick, heavy lace, entirely covering the fruit. The groundwork of the skin should be light olive-green, turning slightly yellow as it ripens. The flesh should be thick, firm, and smooth—never watery in appearance—and rich and melting in flavor. Near the rind it should be dark green,

Jacques Boyer, Paris

Young melons under glass bells in a Paris market-garden shading lighter towards the seed part, which should be orange (or ''golden'') or salmon in color. The seed cavity should be small and well filled with seeds.

Almost equally popular in some sections is the salmon-fleshed Rocky Ford, specifically known in eastern markets as the ''pink melon.''

Of a different type is the (also excellent) Osage, or ''red cutting,'' melon, with (in original strains) dark skin and thick, orange-red flesh, largely grown in the West. It is commonly oval to oblong, from three to four pounds in weight, and lightly ribbed and netted. Osages have been extensively crossed with Rocky Fords.

The various strains of ''Hackensack'' melons are larger fruits, round, with broad, deep ribs, and (generally) green flesh.

The first outdoor offerings begin to reach the northern markets from California and the South during May. Successive crops extend the season over a number of months.

As muskmelons are very perishable, they should be carefully handled. In purchasing, the housewife should avoid overripe, soft, and bruised specimens. They are best chilled in the refrigerator. If cracked ice, served with each individual portion, is relied upon to cool them, it should be employed as a bed—it should not be placed in the hollow of the fruit, for that dilutes and impoverishes the flavor.

The epicure prefers to season his melon only with a little salt, but there is no good argument against the use of sugar if that produces a flavor more agreeable.

Both sweet and sour pickles are made of muskmelons—from underripe whole fruits and ripe rinds.

Winter and Imported Melons

''Winter melons''—marketed chiefly in the fall and early winter—are both netted and plain, and generally large, strong in rind, and of good keeping quality. They are odorous and otherwise, and of various shapes—roundish, narrow, oblong, and oval. A number of European forms are red-fleshed.

Like the summer types, the winter melons also change and develop in style. Among those which have won and retained special prominence in American markets are the Casaba and Honey Dew (or ''Ostrich Egg'').

The Casaba of common cultivation is the ''Golden''—roundish, with lightly ribbed or corrugated skin varying (on the same melon) from orange-yellow to dark green, and with thick, sweet flesh, cream-colored or golden. The ''Pineapple'' Casaba has greenish-white skin and flesh which is light yellowish-green shading to white. Good specimens average eight inches in diameter and a weight of eight pounds or more.

The Honey Dew has a smooth, somewhat warted, creamy-white to greyish skin, strong but thin, and sweet flesh shading from green to white. Good specimens average seven inches or so in diameter, eight inches or more in length, and seven pounds or more in weight.

Winter melons of good varieties—Casabas particularly—will, under proper conditions, keep for two months after gathering. They should not be eaten unless fully ripe—they need just as complete maturing as summer melons.

Supplementing the domestic crop is a small, irregular importation. It includes shipments from many parts of the world—the West Indies, South America, South Africa, and various Mediterranean countries—reaching us generally in the late winter and very early spring when our own supply is low and social affairs create a demand that is willing to pay good prices to cover the cost of transportation.

MELON-FRUIT, a local title for the North-American Papaw (which see).

MELON-PEAR, another name for the Pepino (which see).

MELON-THISTLE, *Melocactus*, a cactus of the West Indies, Mexico, and parts of South America—found usually in rocky places—which takes its name from its resemblance to a huge muskmelon—the plant consisting of a deeply ridged, rounded body, one to two feet in height. It is also called the "Turk's cap," as in the center of the top is a crown of spines filled with woolly, fibrous matter. The blossoms show through the upper surface of the cap and are followed by small, generally red fruits, roundish or oval, of agreeable, acid flavor. The body of the plant, the "melon," is full of succulent matter which is eagerly sought by cattle in times of drought despite its protective thorns.

MELON ZAPOTE, one of several names of the tropical Papaw (which see).

MELT, or Milt, the spleen. That of beef, sheep, and pork has about the same flavor and food value as the liver of the same animal (see Liver), and is similarly prepared. A large part of the supply is taken by sausage manufacturers and fish hatcheries.

Menhaden

MENHADEN, a fish somewhat resembling the shad but smaller, averaging about twelve inches in length, very plentiful along the North Atlantic coast. Its all-important rôle in its own world of salt water seems to be to grow and propagate in order to serve as food for other fishes, for it is devoured ravenously and in staggeringly great quantities by the cod and the bluefish, and many others of its contemporaries. Mankind eats sparingly of it, for it is rather excessively bony and oily, but holds it in high value as bait for the cod and other fisheries, as well as for the industrial oil extracted from it and for the expressed residue which is used as fertilizer.

It has indeed been a part of our economic life from the earliest days, for the eastern tribes of North-American Indians had used the whole fish as a fertilizer for their corn hills prior to the coming of Columbus, and their example was followed and long practised by the white settlers.

MESQUIT, or Honey Mesquit, or Algarroba, or Cashaw, a thorny shrub, or tree, of the southwestern states, Mexico, and elsewhere, whose sweetish pods are chiefly used as cattle-food but are also locally eaten both fresh and dried by human beings and are boiled to make a molasses-like sirup. The pods resemble the Carob-bean (which see) in general character but are much more slender. They range in length from four to nine inches, with a width of only about a third of an inch and a thickness of about a sixth of an inch. They are whitish or yellow, sometimes flecked with red, and are borne in small clusters of two or three, up to a normal maximum of ten.

An allied species is known as the "screw bean," or tornillo, from the twisted shape of its pod. It is smaller than that of the honey mesquit, averaging only from one to two inches in length.

MEXICAN STRAWBERRY, the fruit of a member of the *Echinocactus,* or hedgehog-cactus genus, of salmon color, about two inches long and one inch in diameter. It is much sweeter than the ordinary cactus fruit and the entire pulp is readily eaten, as the seeds, unlike those of the Prickly Pear, are as small as strawberry seeds.

The hedgehog cactus takes its name from the long spines which cover its generally globose or oval body The plants often reach enormous size and many of them bear large, showy flowers of great beauty. The spines are used in Mexico as toothpicks and for various other purposes.

MICRO-ORGANISMS. Within the scope of this subject come a large number of minute forms of vegetable life. Those which affect human foods and digestion may be divided into three classes under the titles of molds, yeast, and bacteria. The appearance of molds, or moldiness, is familiar to every one. Yeasts are too small for single specimens to be seen without the aid of a microscope, but in a mass (of hundreds of thousands or millions) they are handled by the general public in the form of yeast cakes. Bacteria are still more minute and the average consumer never attains a personal acquaintance with them, despite the fact that the effects of their existence are observable all around him.

With a few exceptions, as in the making of some cheeses, molds seem to serve no good purpose in the human food supply. Yeasts are responsible for all kinds of fermentation (as popularly understood), both desirable and otherwise—and are essential for bread-making. To bacteria is due much of the enjoyable flavor of many of our foods, but their uncontrolled presence renders them not only unwholesome but often actually poisonous.

Molds and yeasts and bacteria are present everywhere—the atmosphere above the middle of the ocean, the center of a desert, and regions of extreme cold alone excepted —and are especially numerous in the vicinity of human habitations. If left undisturbed, any food into which they fall, if it affords suitable soil and temperature, is speedily rendered unfit for human use despite their value under certain conditions—hence the danger of exposing foods to the atmosphere, the advisability of the speedy consumption of fresh foods, and the importance of the cold-storage, canning, and drying industries. It is not any toxic quality in the micro-organisms themselves that accomplishes the damage—for with a few exceptions they are entirely harmless to the human system—but the changes they effect in the chemical structure of food by their growth, multiplication, and life in it. Cold storage retards the growth of all micro-organisms; the sterilization of the canning process destroys those contained in the food put in the can, and its hermetical sealing prevents the entrance of any others; and drying (or "dehydration") so greatly reduces the moisture content that micro-organisms cannot propagate in the food so treated (unless, of course, it is permitted to re-absorb moisture).

Special articles on each of these three classes of micro-organisms will be found under their respective titles—Bacteria, Mold, Yeast.

MILK, a nearly perfect food for the very young, and of high value for both children and adults of all ages and under almost all conditions. Examined by a microscope, it is seen as a transparent fluid which consists of great numbers of extremely minute fat globules, suspended, together with casein (protein), etc., in a solution of albumin (protein), sugar, and water. So small are the fat globules that one average drop contains more than one hundred millions.

Cow's milk—which is in this country exclusively understood by the general title of "milk"—varies in composition from 84% to 90% water and 10% to 16% solids. The solids include from 2% to 7% fat, 2½% to 4½% casein, 2% to 6% sugar, a small amount of albumin, a large content of calcium, and small quantities of other minerals. It also contains in its fresh raw state all the vitamins of present knowledge, its exact value in that respect being dependent on the food of the herd—vitamin C, particularly, being most evident when plenty of green pasture is available and least on a diet of dry fodder.

Some milks will reach a fat percentage of 10%, but this is very unusual, the amount rarely exceeding the 7% mentioned. The mixed milk of a large creamery seldom goes above 5% or below 3%. The law generally requires from 3% to 3½% fat, and 8% to 9% of other solids.

The fat when extracted is butter. The casein is one of the main components—in many types, the predominating component—of cheese. The sugar (see MILK-SUGAR) is a disaccharid—i.e., it is in the same class as the ordinary sugar of commerce, though it is not so sweet.

The chief normal bacterial content is of lactic acid bacteria—the lactic acid resulting from them causes the "souring" of milk, and is essential to the manufacture of ordinary butter and of all true cheese.

Brown Bros.

House-to-house delivery of milk by dog-carts, common in some parts of Europe

Copyright, Underwood & Underwood

Dairymen of Darjeeling, India. The milk "cans" are sections of bamboo

Milk should be more generally recognized by adults as one of their main foods—in the same class as meat and eggs—to be reckoned as a "solid" (for such it becomes very soon after it enters the stomach)—and to be regularly consumed as an exceedingly nutritious and comparatively inexpensive part of the regular diet. It deserves a much higher place than chiefly for the modification of tea or coffee, or as an occasional "drink."

Following out the same idea, it is best consumed together with other foods—with bread or potatoes, etc.—just as one eats them with meat or fish.

An objection frequently made to the consumption of milk is its tendency to conversion into a "clot" in the stomach—this being the result of the action of the stomach rennin on it. Sometimes this clot is finely flocculent but in many cases it is dense and shrinks into a tough, leathery mass under the action of the gastric acid—the degree of toughness depending both on the casein and calcium contents of the milk and upon the acidity of the gastric juice.

Even a very dense milk clot is readily handled by a good digestion, but it may prove an obstacle of importance to people not so blessed. Fortunately, there is no necessity for them to ask their stomachs to wrestle with one. Clot density can be largely avoided by eating bread or potatoes or crackers with the milk as already suggested—in that way, milk agrees with nearly everyone. If it is desired as a beverage without such accompaniments, the same result can be effected by diluting it to half water, or to about one-third of lime water and two-thirds of milk, or by the addition of barley-water, or gruel, or gelatin, or carbonated water (when not objectionable for other reasons).

Raw milk forms a larger harder clot than boiled milk (this statement, sometimes disputed, has been upheld by recent direct experiment). Pasteurized milk stands about between the two. The richer the milk in cream, the softer the clot—

Carrying milk on the Greek island of Corfu

the larger fat content keeping it, though, longer in the stomach. Skimmed raw milk produces a particularly hard mass.

A special word of caution concerning "sipping" milk is necessary. Sipping (or at all events the avoidance of hasty drinking) is praiseworthy if one is eating bread, or other food, with milk, but as an attempt to minimize the objection of difficult milk clots in the stomach when drinking undiluted milk without any other accompanying food, sipping is worse than a failure—it results in achieving the direct opposite of the intent, for (contrary to general opinion) though the clots formed are smaller they are especially tough. The larger clot formed of a glassful taken at a draught is less dense and leaves the stomach more speedily.

Further, though milk in moderation is inclined to be constipating, it frequently displays a laxative tendency when consumed in large quantities.

Though it is a wise step to join those who have added milk to the staple foods of their everyday diet, one need not go the full route with its ultra-enthusiastic devotees. Milk, despite its high value, is not the "perfect" food for an active adult that some have asserted, and is not suitable for an exclusive diet. In the quantities that he would require to supply his needs, it would not only speedily become an obnoxious diet to the average individual—it would also burden his sys-

International

A milkman on his way down the Spree, near Berlin tem with an excess of water, and would fail to furnish the "roughage" so desirable as an aid in the digestive system's handling of its food supply.

Again, though milk as an exclusive diet (modified merely by sodium bicarbonate or barley-water, etc., according to conditions) is almost completely absorbed by babies, it is not under the same conditions as well assimilated by the adult as when consumed with other foods—there is a considerable intestinal waste of both carbohydrates and protein.

For further consideration of the place of milk in the general family dietary, see the article on Food Values.

Certified milk is raw milk produced under the regulations of local medical milk commissions. When the commissions are alert, the consumer is ensured milk from clean, well-groomed, healthy cows, produced in clean, well ventilated, well conducted stables, and promptly cooled, bottled, and delivered in the most sanitary manner and with the greatest possible expedition. These requirements ought to be met in the production of all milk—whether to be delivered raw or pasteurized—but they are particularly essential to raw milk.

Certified milk must show a certain specified content of fat and other solids, and must test below a certain number of bacteria per cubic centimeter. Though it is now known that extreme lowness of bacterial count is, in itself, of less importance than had been supposed (for the presence within reasonable limits of non-pathogenic bacteria is natural to practically all milk), the test remains valuable as a general indication of dairy conditions—because a low bacterial count is ordinarily possible only in milk produced in a sanitarily conducted establishment.

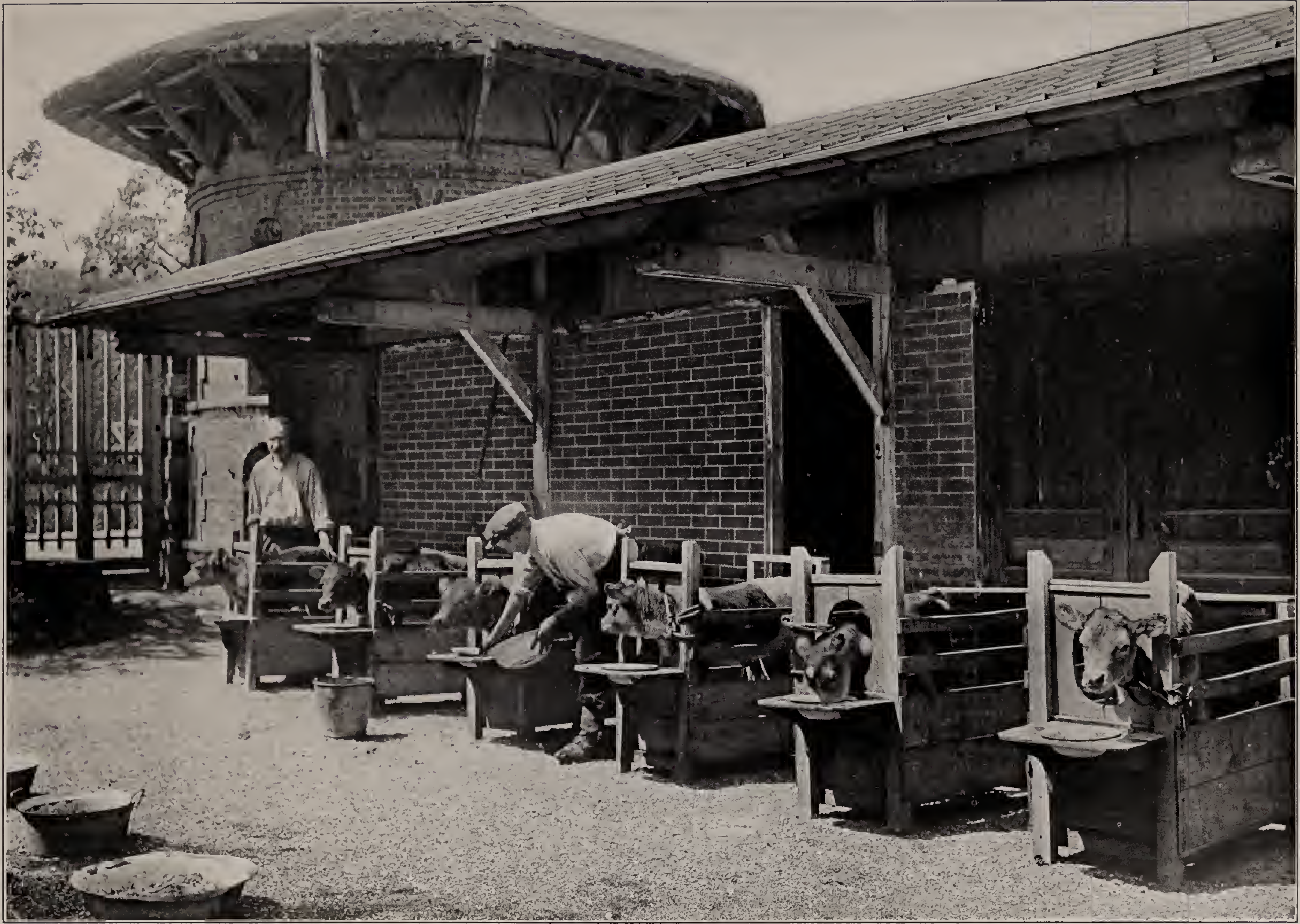
Certified milk (produced under the inspection of an alert commission) is in most cases entitled to the preference. When certified milk is unobtainable, or if any suspicion rests upon it, milk should always be pasteurized.

Pasteurized milk is milk that has been heated—below boiling but to a degree and for a length of time sufficiently high to kill, or at least to render innocuous, practically all pathogenic bacteria—and then immediately cooled to 50° Fahr., or lower, to retard the development of any remaining organisms. When pasteurization is carefully effected, the chemical changes in the milk are so slight as to be negligible.

The two chief advantages of pasteurized milk are, that pasteurization kills any disease bacteria that may have entered the milk from the cow or otherwise, and that it remains fresh longer than raw milk. The disadvantage is the loss of some of its vitamin-C merit, necessitating replacement in the dietaries of infants and young children by the consumption of orange or tomato juice, etc.

If dairy-pasteurized milk is not obtainable, pasteurization can easily be performed at home. The essential requirement is that the milk be held in sealed bottles (or other containers) for from twenty to thirty minutes at a temperature of not less than 145° Fahr. nor more than 150° Fahr. (verified by a thermometer placed in one of the containers—as through a small hole in a paper cap), then cooled as rapidly as possible without breaking the bottles, and thereafter held in a refrigerator or other cold place until used. A pail will serve for the pasteurizing if a perforated false bottom is set in it to guard against breaking the bottles.

Next best is simple boiling for a few minutes. If done in a double-boiler, and then rapidly cooled, and later strained, the change in flavor is slight.



Jacques Boyer, Paris

''Cradles'' for young calves in a dairy near Paris

Sterilized milk is milk that has been heated to the temperature of boiling water, or higher, and held at that point long enough to kill all organisms present; or is milk that has been repeatedly pasteurized. Either process renders it free from all danger as a disease carrier—provided that it be not re-exposed to contamination—but it generally results in a "cooked" flavor that is objectionable to many palates, and also in the destruction of most or all of its vitamin-C value.

Condensed milk. See article under its own head.

Dry, or Desiccated, milk is a product obtained by the evaporation of whole or "part cream" milk, or skim-milk. It is largely used by bakers, manufacturers of milk chocolate, ice-cream manufacturers, etc. Its consumption in the household could be profitably extended.

Dry whole milk is a soft, creamy powder containing from 25% to 27% fat, 30% to 32% protein, and 30% to 32% milk sugar. Dry skim-milk is a white or light yellowish, crystalline powder containing about 12% fat, 34% protein, and 44% milk-sugar. Whole milk, or part cream, powder is perishable, easily becoming rancid, but dry skim-milk, if kept tightly sealed and in a reasonably dry and cool place, will remain fresh without refrigeration for a considerable time.

If well manufactured, skim-milk powder offers many advantages, especially as an emergency supply and for use in regions without (or with unsatisfactory) milk service. It is always available as fluid milk by simple dilution with water. The result (if in correct proportion) tastes and looks very much like fresh skim-milk—the "cooked" flavor is so slight as to be unnoticed by many people. Furthermore, in its dry form it lends itself readily to the enrichment of the diet by addition to bread and biscuit dough, soups, etc. In infant feeding it must be remembered that it lacks the fat content of the whole milk. The bacterial and vitamin reduction is about that of pasteurized milk.

Fermented milk may be generally described as that in which part of the lactose has undergone fermentation. It includes four chief types—Buttermilk (with which is included the similar ripened and churned skim-milk—see article on Buttermilk) and common "Sour milk" (see subhead following), in which the chief agents are ordinary varieties of lactic acid bacteria; Kumiss (which see), in which the lactic acid fermentation is supplemented by an alcoholic; and Yoghoort (which see) which employs some member of the special *Bulgaricus* group of lactic acid bacteria in addition to ordinary varieties, and thus greatly increases the lactic acid percentage. The ordinary lactic acid bacteria will seldom produce more than 1% of lactic acid—the content is usually less—whereas good Bulgaricus may give from 2 to 3%.

A complete list would include many other kinds of fermented milk produced in different countries—all having the same quality of preserving milk, in some cases for long periods—a point of vital importance in nomadic or other communities without modern distribution and cold storage facilities.

It is the Yoghoort type of fermented milk which has been so widely discussed as an aid to longevity and which is popularly credited with the specific faculty of preventing toxic decomposition of food in the bowels, and thus warding off a long train of disorders prejudicial to both health and life. It is commercially manufactured from pasteurized cow's milk, and is extensively offered under many trade titles. It may be made at home from pasteurized whole or skim-milk by the use of commercially offered cultures—the best method being to ferment half the quantity with ordinary lactic acid bacteria, or sour milk culture, and the other half with the Bulgaricus culture, and then to churn, or stir, together. The Bulgaricus alone gives a rather slimy curd which does not break up sufficiently fine. A skim-milk culture of Bulgaricus may also be added to ordinary buttermilk, making it smoother and improving its flavor by increasing its lactic acid content.

These ''Yoghoort'' milks are agreeable and nutritious beverages which have real therapeutic value in the treatment of some intestinal disorders, but their action is not, as was formerly asserted, the result of the implantation of great numbers of *B. Bulgaricus* in the intestinal tract—for such implantation does not take place. Recent experiments have shown that *B. acidophilus* (a bacterium closely akin) can be implanted—the method being the consumption of considerable quantities of acidophilus-fermented milk and additional lactose—but it has been found that the change in the intestinal flora thus effected does not necessarily lessen toxic decomposition.

Malted milk. See under its own head.

Modified, or Blended, milk is milk modified in its composition so as to have a definite and stated percentage of one or more of its constituents.

Skim-milk is that from which a part or all of the cream has been removed. When the cream has been allowed to rise, in place of commercial centrifugal separation, skim-milk varies considerably with both breeds of cows and individual animals. The cream of Alderney, Guernsey, and Jersey cows rises more rapidly and completely than that of Holsteins and Durhams and consequently leaves thinner, bluer skim-milk.

Reconstituted milk is milk re-made by centrifugal mixing of ''sweet butter'' (i.e., milk-fat—see article on Butter), dry skim-milk, and water in correct proportions. The result is analytically the same as fresh milk, and there is no readily discernible difference in either flavor or appearance. Cream is similarly produced, resuming all its common qualities except that it does not ''whip'' satisfactorily. The method derives its advantages from the fact that sweet butter and dry milk are much more easily preserved than fresh milk. Thus separated and then ''re-assembled,'' the milk of far western dairies can be consumed ''fresh'' in New York or any other large city. The practical operation of the process has extended very rapidly.

"Sour milk"—i.e., milk curdled as the result of the formation of lactic acid by the normal development of lactic acid bacteria—is a thoroughly wholesome food—excellent as a beverage, or, if thick (then known in some parts as ''clabber'') as a plate food to be eaten with potatoes, etc., or with bread and preserves—if initially a clean product which has since been kept clear of contamination. It is also somewhat more easily passed through the stomach because of the precipitation of the casein which distinguishes the act of ''souring.'' But so many ''ifs'' and ''buts'' might be injected in order to erect a complete safeguard, that the best rule is to consume milk (whether raw or pasteurized) just as fresh as possible—and to keep it as cold as possible (above freezing) until ready to serve it. The one exception to this rule is sound, fresh milk—whole or skimmed—specially and intentionally curdled by lactic-acid, or "sour milk," cultures.

Cream. See under its own head.

Buttermilk. See under its own head.

Milk Tests. Generally speaking, pure milk is of a slightly yellowish-white color, with little or no odor, and of a distinctly sweet and fresh flavor. If allowed to stand for several hours, cream should rise naturally and should form from one-eighth to one-fifth of the total volume. In rich milk the proportion of cream may be as high as one-quarter. No sediment should be found in the vessel in which it has stood. When poured from a tumbler, the milk should cling to the glass a little instead of running off clean like water.

Artificial coloring generally consists of annatto or coal-tar dyes. If any considerable quantity is used, its presence can generally be detected by noting the appearance of the milk when the cream has risen in the bottle. The *natural* color of milk is confined largely to the cream, and there is consequently a noticeable difference between the color of the pure cream and that of the milk below it—the latter presents a bluish tinge. *Artificial* colors will generally tint also the body of the milk below the cream.

There are several methods of detecting adulteration and determining the comparative richness of milk, prominent among them being the lactometer and the Babcock test, but trained judgment is necessary to obtain conclusive results because of the considerable variation in milk from different sources and at different seasons.

Care of Milk. Milk should be kept at a low temperature, below 50° Fahr., and apart from all articles of strong smell. Every receptacle employed in handling it should be scrupulously clean. The necessity for absolute cleanliness in its care should be impressed particularly upon those who have the care of children in whose diet milk is (as it should be) the preponderant food.

Many cans and bottles are sent to the grocer's for milk with a dingy coating on the inside—this is inviting sickness. Receptacles of any kind which have held milk should be thoroughly rinsed in cold water and then washed in hot water to which a little ammonia has been added.

Much of the care exercised in the handling of milk by dairies and milkmen is nullified in hot weather by its being permitted to stand exposed outside the consumer's door for the several hours of the early morning that often intervene between the milkman's call and the rising of the family. This can be obviated to a large extent by procuring a tight, well-covered, heavily insulated box in which the milk bottles can be set, and placing it in the shadiest position available. If the milk comes ice-cold from the wagon, the box will keep it at a low temperature for a considerable length of time.

See also the article on GOAT'S MILK.

MILK CHOCOLATE. See the article on COCOA AND CHOCOLATE.

MILK-POWDER. See *Dry, or Desiccated, milk* in the article on MILK.

MILK-SUGAR, or Lactose, is obtained from the whey of milk, chiefly from that of cheese factories. The whey is digested with aluminum hydroxide and chalk, and then filtered, the liquid obtained being concentrated tc a sirup and stood in copper-lined tubs to crystallize, chips of wood being added to and immersed in it. The crystals which are deposited on the chips are considered the finest quality; those forming on the sides of the vessel are secondary in commercial importance.

As noted in the article on MILK, lactose is less sweet than ordinary sugar. It is only sparingly fermented by yeasts, but is readily split up by lactic acid bacteria with a consequent formation of lactic acid. Hence the desirability of its use must be determined by the facts or symptoms of individual cases. It is largely used in the preparation of homeopathic remedies and in infants' foods.

Our supply was until recent years chiefly of the imported product (principally from Switzerland). Domestic manufacturers now furnish the bulk of it.

MILLET, a title loosely applied to a number of small-seeded cereals. Some of them are extremely productive—the average yield per acre of the "Hungarian" (*Setaria italica*), for example, greatly exceeds that of wheat—each plant producing a number of stalks and a single head often giving two ounces of seed. The seed of many kinds makes good pudding, blends well (in meal form) with wheat-flour in bread-making, and is excellent in soups. The chief use of the crop in this country is, however, as green forage and ensilage. The small proportion of grain marketed, other than for seed purposes, is consumed principally as poultry and cage-bird food.

In the early days of the world's history, millet held high place as a food grain, and it is still of large importance in some regions, particularly in parts of Asia.

MILT. (1) The soft (male) roe of fish (see ROE). (2) The spleen (see MELT).

MINCE-MEAT, in former days a mixture of finely minced meat, suet, apples, raisins and other dried fruits, citron, molasses, sugar, spices, etc., and brandy or other spirituous liquor, or cider. To-day, not only is the spirituous liquor omitted, but also frequently the meat and suet also, leaving a mixture chiefly of fruits, molasses or sugar, and spices. For the small household—and also the large household where hands are busy and help is scarce—the good grades of commercially prepared mince-meat are very convenient. Because of its special character, doubtful commercial offerings should be avoided, but the product of several large manufacturers is beyond reproach—the fruit is cleaned and handled by machinery, and other components also are selected and prepared with scrupulous exactness.

MINERAL WATERS, a popular title for waters which contain unusually large quantities of the ordinary mineral ingredients, or which contain minerals not generally found in ordinary water. They are obtained from both wells and natural springs. They may be divided into "table" and "medicinal," though the division is not exact, a number of the milder and more delicate being consumed for both purposes.

Table Mineral Waters are those which have little or no pronounced flavor. Many kinds are effervescent from their content of carbon dioxide—both natural and added.

Medicinal Mineral Waters are, generally speaking, those with a greater proportion of minerals. They are variously grouped by one or other of their chief components or characteristics—as alkaline, chalybeate (iron), sulphur, lithia, aperient, etc.

In a separate group may be placed the mineral "hot springs" whose merit rests largely on the higher natural temperature of their water and on their content of natural organisms—and frequently a degree of radio-activity—instead of on their (in many cases) only very slight mineral variation from ordinary water. Such waters are to a large extent foreign to this article as their principal use is in the form of baths.

Mineral waters have been used as remedial agents from a very early period—the old Greek physicians had great faith in their curative powers, and the temples erected to Aesculapius were usually in proximity to mineral springs.

The medicinal quality of some kinds is undeniable but the apparent efficacy of a majority is attributable largely to the fact that, in "taking the waters," visitors to the springs enjoy the benefit of rest and change, and at the same time are benefited by the consumption of large quantities of innocuous liquid—stimulated to its free use by the example of others and by local medical advice. Much of the same beneficial result can be obtained at home by the free consumption of bottled (table) mineral waters. The effect is almost universally advantageous to the health of the drinker. The bottled water may not be appreciably better than that of the ordinary community supply, but if it tempts one who is not tempted by the ordinary water it has served a good purpose.

All the famous springs of Europe have their counterparts within the boundaries of the United States. Colorado can practically duplicate most of them.

Artificial mineral waters are, if properly made, chemically correct reproductions of the waters whose names they bear.

Bottled waters of all kinds should be kept in a cool place and laid on their sides.

Following is a list, with sources and principal ingredients, of a majority of the best known waters, both table and medicinal, which are commercially bottled.

Aix-la-Chapelle, from warm springs at Aix-la-Chapelle, Prussia. Contains a considerable percentage of common salt and other sodium salts and sulphur.

Apenta, an aperient water from the Apenta Springs, near Budapest, Hungary. Its principal constituents are sulphates of magnesia and soda. It is sold both sparkling and still.

Apollinaris, an effervescent table water from the Apollinaris Spring, Ahr Valley, Rhenish Prussia. Drawn from a rocky source at a depth of 50 feet.

Baden-Baden, from Baden-Baden, Austria. Contains salt and lithia and is used as a diuretic, etc.

Ballston Spa, from Ballston, N. Y. An effervescent water, tonic and cathartic, containing salt and carbonates of magnesium and calcium.

Bear-Lithia, from Bear-Lithia Springs, Va. Contains carbonates of calcium and magnesium. Used as a table water and as a diuretic.

Bedford Springs, from Bedford Springs, Pa. Calcic-sulphated. Used as a table water and as a tonic.

Bethesda, from Waukesha, Wis. Mildly impregnated with carbonates of lime and magnesium. It is sold effervescent and used both as a table water and as a diuretic.

Blue Lick, from Blue Lick Springs, Ky. Contains sulphur and salt and possesses cathartic properties.

Bokert, from Bokert Springs, De Soto County, Mo. Used in the treatment of kidney trouble.

Byron Springs, from Byron, Cal. Muriated-saline. Used as a table water and for various medicinal purposes.

Buffalo Lithia, from Buffalo Lithia Springs, Va. Used as a table water and in the treatment of digestive disorders.

Calistoga Springs, from Calistoga Springs, Cal. Muriated-saline. Used as a table water and medicinally.

Carlsbad, from warm springs in Carlsbad, Czecho-Slovakia. Sulphated and strongly charged with carbon dioxide. Employed for rheumatism, gout, etc.

Clysmic, from Waukesha, Wis. A sparkling table water of which calcium carbonate is the chief ingredient. It is also used as a diuretic.

Congress. See *Saratoga.*

Contrexéville, from Contrexéville, France. A lightly mineralized water, containing sodium, magnesium, and calcium. Used as a laxative and diuretic.

Friedrichshall, from Saxony, Germany. Contains sodium, magnesium, and calcium. Used as a tonic and mild purgative.

Hathorn. See *Saratoga.*

Hunyadi János, from Budapest, Hungary. Contains sodium and magnesium sulphates and possesses cathartic properties.

Johannis-Lithia, from Zollhaus, Rhenish Prussia. Used in the treatment of kidney disorders, etc.

Kissingen, from Kissing, Bavaria. A slightly laxative water.

Londonderry-Lithia, from Londonderry-Lithia Springs, N. H. A lightly mineralized water used chiefly for the table. It is sold both sparkling and still.

Manitou, from Manitou Springs, Colo. Impregnated with alkalies and iron. Used as a tonic and cathartic.

Marienbad, from Marienbad, Czecho-Slovakia. Used in the same way as *Carlsbad.*

Perrier, an effervescent table water from springs near Vergaze, in the south of France.

Pluto, from French Lick Springs, Ind. Used as an aperient.

Poland Spring, from South Poland, Me. Only slightly mineral. Used as a table water and as a diuretic.

Pullna, a strongly purgative water of Czecho-Slovakia.

Rhens, an effervescent, mildly alkaline table water from Rhens-on-the-Rhine.

Richfield Springs, from Richfield Springs, N. Y. Contains sulphur and is used in the treatment of skin diseases, rheumatism, etc.

Rubinat-Condal, from the Spanish Pyrenees. The principal ingredient is sodium, with minor quantities of magnesium and calcium. Used as an aperient.

St. Galmier, an effervescent table water from St. Galmier, Canton of Loire, France. The principal mineral ingredients are sodium and calcium.

Saratoga, a general name for a number of waters from Saratoga Springs, N. Y., including *Hathorn* and *Congress,* some used for tonic and others for laxative purposes.

Seidlitz (correctly "Sedlitz"), from Sedlitz, Czecho-Slovakia. Used as a laxative.

Selters, or Seltzer, from Nieder-Selters, Prussia. Contains chiefly common salt and smaller quantities of carbonates of magnesium, calcium, and sodium.

Sharon Springs, from Sharon Springs, N. Y. A sulphur water used for the treatment of skin diseases, rheumatism, etc.

Taunus Spring. Sometimes used as a class name for a number of mineral waters from the Taunus Mountains, Germany, including Ems, Wiesbaden, Selters, etc.

Teplitz, from warm springs at Teplitz, Czecho-Slovakia. The most noteworthy principle is carbonate of sodium, with traces of magnesium and iron.

Vals, from Vals, France. Contains sodium, calcium, and magnesium. Used in the treatment of dyspepsia and skin diseases, and as a diuretic.

Vichy, from warm springs in Vichy, France. Contains sodium, potassium, and calcium, and minute quantities of arsenic and iron. Used in the treatment of rheumatism and as a diuretic.

Vittel, from Vittel, France. Used both as a medicinal water and for special baths. There are three main springs—the water of *La Grande Source* is used as a diuretic; that of *Marie,* as a purgative; and of *Des Demoiselles,* as a tonic.

Waukesha Springs. See *Clysmic* and *White Rock.*

White Rock, an effervescent table water from Waukesha, Wis.

White Sulphur Springs, from White Sulphur Springs, W. Va. A sulphur water employed in the treatment of skin diseases and disorders of the digestion.

Wiesbaden, from warm springs in Wiesbaden, Prussia. Contains a considerable percentage of saline matter and is employed for skin diseases, gout, etc.

Yellow Sulphur Springs, from Yellow Sulphur Springs, Va. A cathartic water containing lime salts and sulphates.

MINT, a general name for a large number of strong-scented perennial plants, the best known of which are peppermint, spearmint, and pennyroyal, cultivated chiefly for their essential oils. The two first are the most important. Oil of pennyroyal was at one time extensively employed in medicine but it is now produced only in comparatively small quantities.

About 90% of our peppermint and spearmint oils—and that means about 50% of the world's entire commercial supply—is produced and distilled in a small area of twenty-odd thousand acres of muck land in southern Michigan and northern Indiana. Our annual consumption of peppermint oil is about 300,000 pounds; that of spearmint about 25,000 pounds. Their chief uses are in medicine, confectionery, and chewing-gum.

"Black mint"—with deep green leaves and dark purple stems—is the variety most productive of peppermint oil, but that of "white mint" is most delicate in flavor. Black mint is also more hardy than either white mint or "American mint"—the latter an English variety that has run wild in the eastern and central states.

The plants are cut when mature and in full bloom, and allowed to cure like hay. They go next into large wooden vats through which steam is forced, the heat rupturing the oil cells and permitting the oil to escape with the steam. The oil is separated after the condensation of the steam.

The ordinary mint of kitchen use, employed for mint sauce and for the flavoring of beverages, is spearmint, the leaves being used both fresh and dried.

Dried mint is retailed in packages, bottles, and cans. It should always be kept in a dry place.

Mint is easily grown under almost any conditions and is a heavy producer—a bed three feet square will give a surprisingly large quantity. If to be used as a dried herb, it is best to cut the stalks just prior to full bloom and to spread them out in a shady location where they can dry slowly.

In some sections, pennyroyal and other mints are used for seasoning instead of spearmint.

The mint of the Bible is believed to have been an earlier form of spearmint.

Mint Jelly, for immediate service, is easily made by stiffening mint sauce with gelatin. If to be kept for future use, it is generally made by flavoring apple jelly—the mint leaves and tips being added to the apples for the last ten minutes of their cooking prior to straining.

MIRLITON. See Chayote.

MOCK-TURTLE (thick), a strong-flavored soup now sold in cans. It contains diced calf's-head meat, etc., in a thickened, brown, soup stock, flavored with various vegetables, herbs and spices, lemon juice, etc. *Clear mock-turtle* is similar in flavor and character ingredients, but the liquid is of consommé type.

MOLASSES, the sirup, or (as it is termed in the districts where it is manufactured) the "mother-water," that is separated from the crystals or grains of "raw sugar" in the process of manufacture (see the article on Sugar). Its quality depends upon the character and treatment of the cane juice from which it is obtained.

The best is that from sugar made from the first crops collected previous to the copious periodical rains which occur where the cane is cultivated. It is generally dark-brown, but the choicest grades, those produced in St. Croix, Barbados, Antigua, Porto Rico, and Louisiana, are of bright amber tint. Fine products are listed commercially by the name of the place of production; ordinary types are graded as "open-kettle," prime, good, fair, common, etc.

"Blackstrap molasses," the poorest, is the final, or exhausted, molasses of raw sugar manufacture.

MOLD, or Mould, the common name for several varieties of minute, thread-like fungi which reproduce themselves by spores (seed dust). They grow on almost anything that is moist or damp and secluded from direct light-rays, but they flourish best on soft articles, such as bread, cheese, and fruits, which permit the threads to strike down into them. On harder substances, such as leather, they achieve only a stunted growth and are then popularly known as "mildew." Dampness, warmth, and seclusion being the principal incentives to their growth, the best preventives are dryness, low temperature, and good air circulation.

Molds especially favor acid foods, hence their predilection for many fruits and the fact that even pickles put up in strong vinegar will mold if exposed to the air, though they are, until "moldy," entirely exempt from the growth of either yeasts or bacteria.

Relatively dry foods, as flour and crackers, kept in a dry temperature, afford no soil for molds—but any moisture in the air will speedily render them liable to invasion.

Special varieties of mold are used in the ripening of a number of famous cheeses, but otherwise they are never employed in the manufacture or preparation of food. Their propagation and growth—as of all micro-organisms—should always in any event be prevented by retailers and in the household.

During their first growth, molds are generally white, soft, and fluffy. As they develop and their threads stretch and spread down through the article in which they have taken root, the surface and other parts most affected soon present a dense mass. When they commence to "fruit" and form seeds, the surface is changed to various colors—blue, brown, white, etc.—the most common being the bluish-green of the Blue Mold which particularly affects bread, cheese, and other foods, as well as many other articles.

If allowed to continue its growth, mold destroys the food by its own consumption and with the aid of yeasts and bacteria, but in its early stages it does not render it unwholesome. The appearance of decay and the musty smell are unpleasant to the eye and nose, but mold has not the putrefactive qualities of bacterial life, and if the affected part is removed before the growth has continued too long and the remainder is subjected to baking or boiling, according to individual circumstances, the food can often be saved for use.

Mold spore is present everywhere. Moderately dry food can be saved from its growth by the exercise of proper care, unless the climate or surroundings are especially damp, but articles such as fruits, which are inherently moist and which cannot be frozen without injury, are very difficult to hold in a raw condition for any considerable length of time. Cold storage is the only sure protection, and then in many cases for only a limited term.

MONKEY-NUT, an English colloquialism for Peanut (which see).

MOONFISH, or Jorobado, a narrow-bodied fish (*Vomer setipinnis*) of the warm waters of this continent, greenish above and golden or silvery on its under-parts. It sometimes reaches a foot or more in length and is good eating.

Another closely related fish bearing the same titles is the silvery *Selene vomer* (also known as "horsehead") abundant along warm, sandy shores.

The big "mariposa" moonfish is of a different family (*Lampridæ*). It is gorgeously colored and its flesh is delicious, but it is infrequently taken off American coasts.

MOREL, an edible fungus which comes under the general grouping of Mushrooms (which see).

MOSS, a class of small, herbaceous plants, the term being generally applied to a number growing together in a mass. The title is also popularly extended to similar growths of other types, particularly to some lichens and seaweeds.

Among the "mosses" used as food, the best known are "Iceland Moss" (which see), a lichen; "Ceylon moss" and "Chinese moss" (see references in the article on Agar-agar), and "Irish moss" (see Carragheen), the last three being seaweeds. "Moss" (or "sea moss") farina is a prepared granulated food of which lichen or seaweed is the principal ingredient.

Moss is also employed by cooks and confectioners instead of isinglass, and by painters to make their size.

MOULD, a popular spelling of Mold (which see).

MOUNTAIN-MINT, or "Basil," a general title for several species of a genus of perennial North-American herbs with aromatic leaves of mint-like flavor. The true Basil (which see) is native to India and Southern Asia generally.

French black mulberry

MUFFIN, in this country generally a small, thick, round, unsweetened "cake," or "biscuit"—as "egg muffin," "corn muffin," and "bran muffin." The muffin most famous in literature is that of England, also round but larger and flattened, generally bakery-made, of flour, milk, eggs, etc., very light and spongy, eaten toasted and buttered at breakfast or tea. For toasting, the muffin is first slit around the edges and inward, but not to the center. After toasting, it is pulled apart for buttering.

MUGWORT, a tall, perennial herb with woolly leaves, formerly popular, both fresh and dried, as seasoning and for flavoring beverages.

MULBERRY, a berry very popular in Europe and very plentiful, but not so highly considered, in this country. It is both wholesome and agreeable eaten raw, and is excellent for cooking, especially when mixed with some more acid fruit as apples or rhubarb in pies and puddings.

The Common, or Black, mulberry, of which the big French Black is the highest type, is a small tree of bushy growth, the fruit purplish-black, with dark red juice, decidedly aromatic and of subacid, sweet flavor. Another desirable variety is the cultivated native Red mulberry. The White mulberry has not the fine flavor of the other two varieties, but it is widely grown for silkworm food, its leaves being usually preferred to those of the black and red fruited trees.

MULLET. There are two true "mullets," different in family, size, and appearance—the small Red and the large Grey. The former, so named for the coppery color of the upper part of its body, is found plentifully in the Indo-Pacific, and also to some extent in Europe, where its firm, lean, and delicious flesh brings high prices. It has indeed always been esteemed one of the epicure's choice luxuries—in ancient Rome it was held in extravagant regard among wealthy patricians.

The Grey mullet is less delicate in flavor, but is nevertheless an excellent food fish. The two most important species are the Common, or Striped (see the color-page opposite), and the White, or Blue-back.

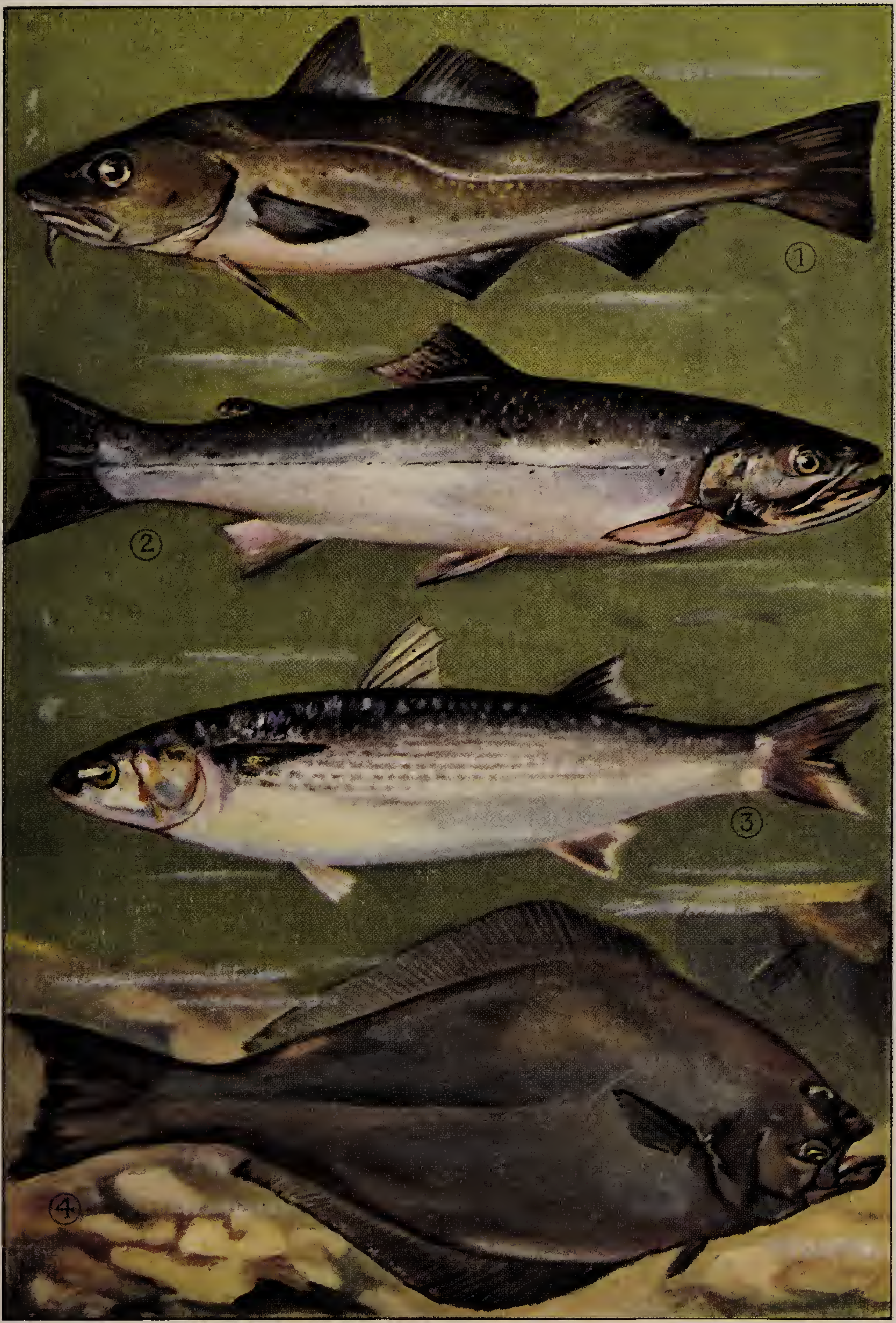
The Common grows to a length of two feet and is very abundant in the rivers, estuaries, bays, and lagoons of the southern and Gulf states. It is dark bluish or greenish above and silvery on the sides, with a dark stripe along each scale row. Its average market weight is five to six pounds and its chief season from June to October. The White mullet is found on both the Atlantic and Pacific coasts, most freely in tropical waters. It is similar though without, or with only very light, stripes.

MULLIGATAWNY, a highly seasoned, thick, East-Indian-type soup, of which curry powder is the essential "character" ingredient. Meats, vegetables, mango chutney, coconut flesh, rice, cayenne pepper, etc., are variously employed and blended to suit the ideas of the cook or canner. The title is derived from two native words signifying "pepper water."

MUSCADINE, a group title for two species of American grapes (*rotundifolia* and *Munsoniana*) native to the southern states and Mexico. The Rotundifolia is the more important, with larger fruit and a greater range of cultivation. Its wild fruit—variously known as bullace, muscadine, and "fox," and borne by vines capable of reaching the tops of the tallest trees—was praised and enjoyed by the first explorers. The most widely grown variety is the Scuppernong (which see), but increasing attention is being given to others, particularly the Thomas, a medium-sized, dark-colored berry, because of its greater productiveness and adaptability, and also because of its being generally preferred for eating raw.

Muscallonge

MUSCALLONGE, or Maskalonge, or Maskinonge, the variously spelled title given to several large fresh-water fishes of the pike family. There are three chief types: (1) the Great Lakes and St. Lawrence River fish—a big creature, sometimes exceeding a length of eight feet and a weight of 100 pounds, of ground-color or silvery-grey skin, marked by irregular black spots, and with flesh that may be classified as excellent; (2) the Barred, or Chautauqua, species (or sub-species), chiefly in New York waters, white and delicate of flesh and reaching five feet in length, dark green on the back and with brassy green bars, split into diffuse spots, and (3) a spotted fish of small lakes of northern Wisconsin and Minnesota.



SALT-WATER FISH

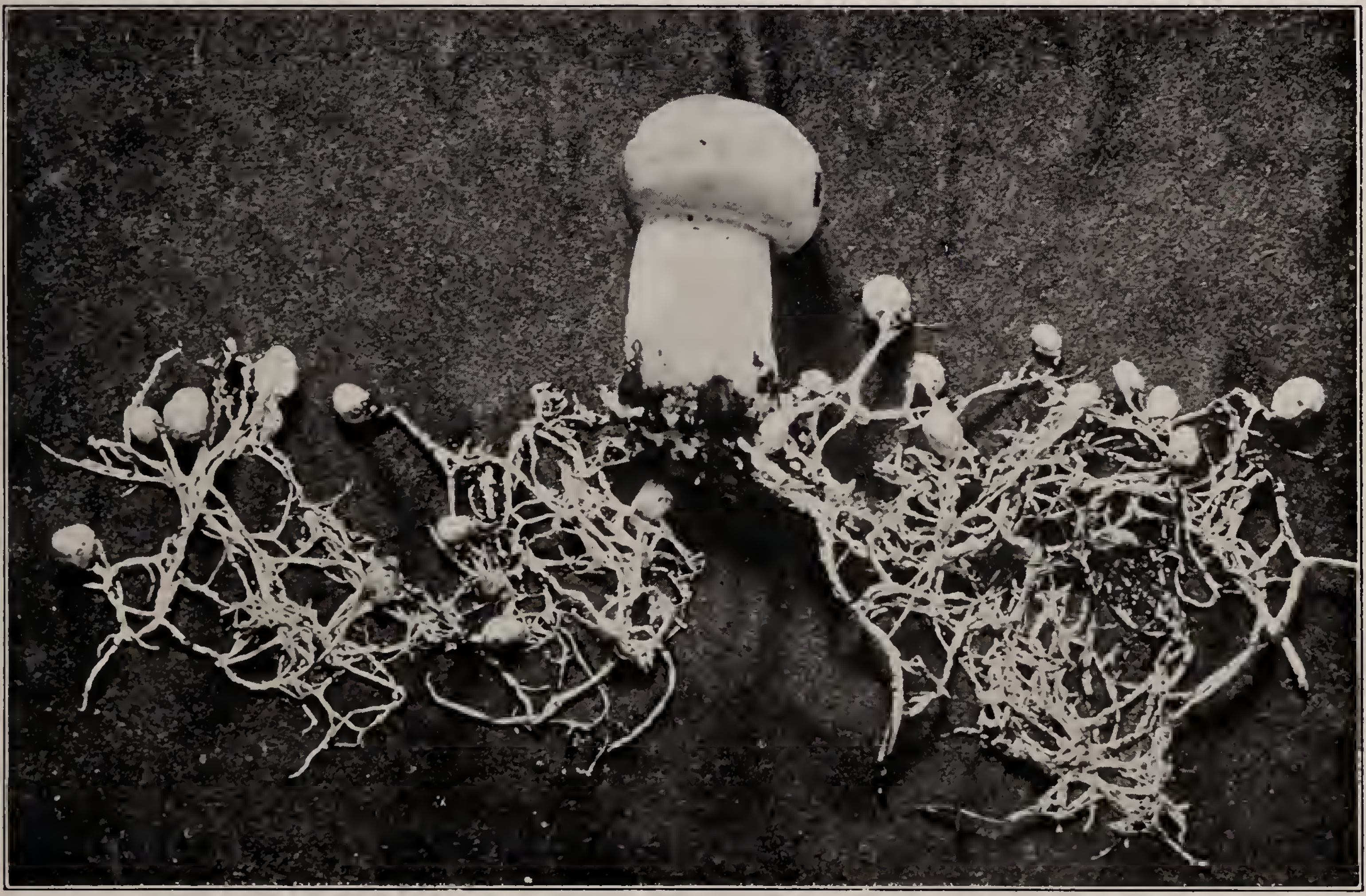
(1) Common Codfish
(2) Chinook Salmon; Quinnat; Columbia River Salmon
(3) Common Mullet; Striped Mullet
(4) Common Halibut

Very large fish. Illustrations greatly reduced. See descriptions.

MUSHROOMS. The general title of "mushrooms" is here used, as popularly employed, to cover all kinds of edible fungi except PUFFBALLS and TRUFFLES, both of which are treated separately under their own heads. They are found in nearly all temperate regions, in forests and orchards, vineyards and pastures, growing wild most freely in the spring and autumn, and they possess a great theoretical interest for many people—with the result that much which is not true has been most impressively written concerning them. First, and most emphatically, mushrooms are not entitled to the pathetic praise, so often bestowed, which describes them as a valuable but neglected food source. Their nutritive value is slight, and unless carefully cooked—and consumed in the greatest moderation—they are liable with many people to retard the assimilation of better foods by their "indigestibility" in the stomach.

The foregoing is the case against the mushroom. With fanciful theories of food value thus set aside, one may proceed with praise for the numerous varieties which please the palate with their unique flavors—to be enjoyed for those flavors rather than for nutrition—and which, furthermore (the best of them free for the gathering), perform also a real service to humanity by adding bulk and substance, even though it be of minor grade, to the diet of hundreds of thousands of people in other parts of the world who are not blessed with the measure of comparative abundance which is, or should be, the heritage of every resident of the North-American continent.

The mushroom is not, as generally understood, the plant, or fungus, itself—it is the fruit of the growth which produces it and which remains underground—a white or



A common mushroom in the button stage, and the mycelium, or plant-system, which has produced it. All was underground (except the top of the button-mushroom) until the earth was removed for the photograph. Note the many small mushrooms forming bluish mold called mycelium, or "spawn," a network mass of thin, thread-like "roots," or underground stems. The mushroom, or fruit, when mature diffuses a quantity of powdery seeds, or "spores," by means of which the fungus extends its propagation. The distribution of the spores is in most cap types from "gills" on the underside of the cap.

Cultivation is confined almost exclusively to varieties of the Common Mushroom. Spawn, because of its quicker results, is used in preference to spores. It is marketed in both cake and flake forms.

Any place is suitable for cultivation which is moderately cool and moist, uniform in temperature, and away from direct sunlight. A cellar is the best ordinary example, but growing on a large scale is generally done in caves, closed tunnels, abandoned breweries or quarries, or specially constructed "mushroom-houses"—usually wooden buildings partly below and partly above ground. The spawn is planted in beds of mixed manure and earth, with a final covering of the latter. When the crop is well under way, the beds are picked once or twice a day for fruit large enough for market.

All kinds of fungi should be cooked as speedily as possible after gathering—or be promptly dried for future use—as their fine qualities quickly deteriorate.

If your harvest does not include sufficient of any one kind to justify a separate cooking, they may all be thrown into a mushroom stew—though some of the delicacy of the choicer varieties will be lost in the process. If the total is too small even for this method of cooking, they may be chopped fine and incorporated in an omelette.

Those that are too mature to be tender (but still not in any degree decomposed) may—with the stems of their younger relations—be made into sauce or catchup.

"Button-mushrooms" are young mushrooms, particularly of the agarics, gathered while still roundish and with unbroken "veils" concealing their gills. They should not be taken unless actually connected by the threads of their mycelium with a mature fruit recognized as edible, for divers buttons both wholesome and poisonous look much alike.

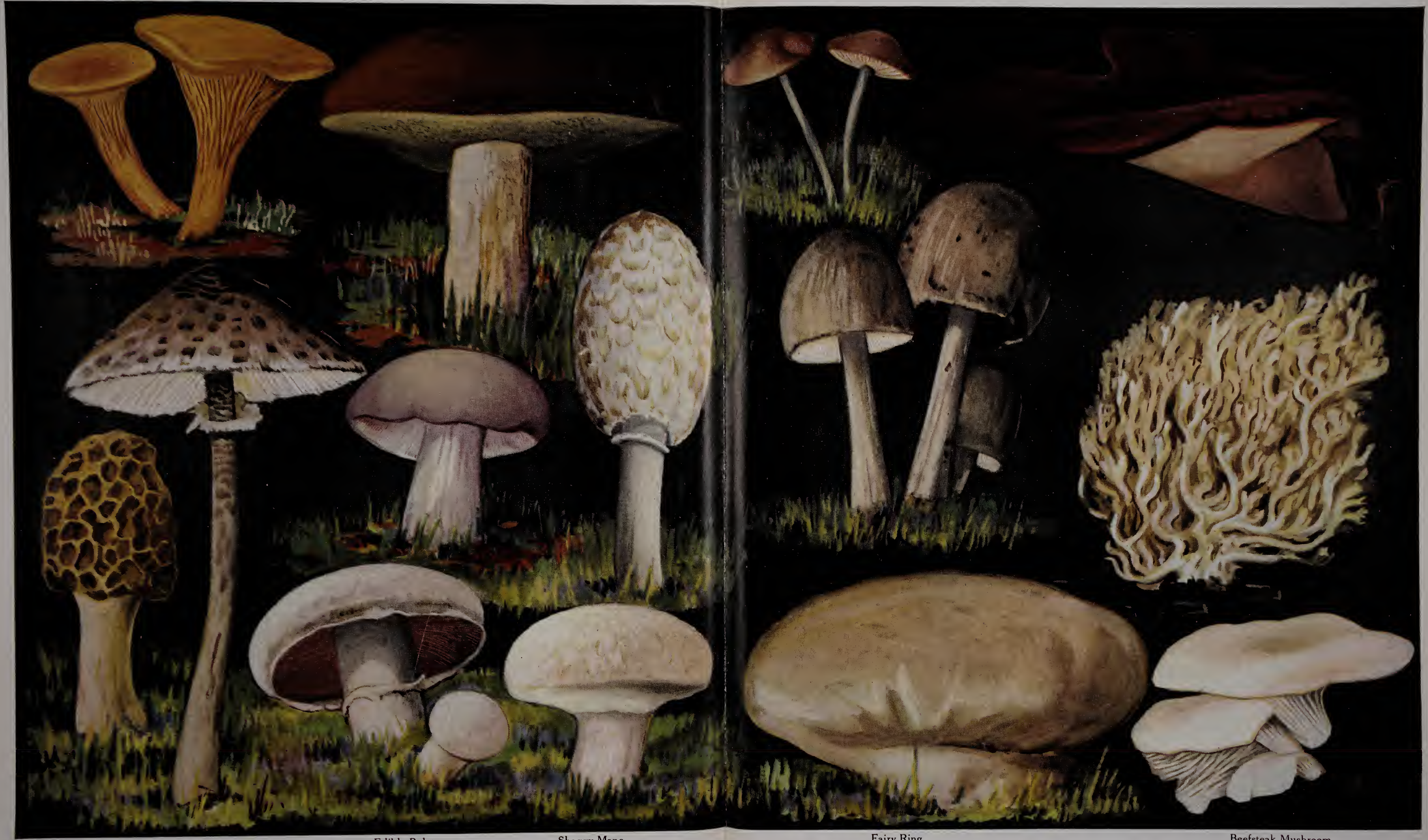
The accompanying double color-page shows a selection of twelve important, generally distributed mushrooms. Mushrooms of the same species and variety frequently differ considerably in coloration as well as in size, but the illustrations are of specimens typically average in general appearance. The average size is larger than that of the illustration. Additional descriptions will be found in the following list.

The novice should make himself thoroughly familiar with the general appearance and characteristics of a species before he ventures to eat a specimen, and all mushrooms (or other fungi of any kind) which are infested by insects, sodden with rain, or have commenced to decompose, should be avoided or discarded.

Morels (if of sound condition) make a distinctive change from the common mushroom and are safe to experiment with, as there are no known poisonous fungi resembling them closely enough to deceive an ordinarily observant person.

Ground Mushrooms

COMMON MUSHROOM (*Agaricus campestris*), both wild and cultivated, the most generally acceptable type of mushroom in this country and England, and the common *champignon comestible* of the French canned product. It is found wild during the late summer and fall in grassy places, manured ground, etc.—never in close woods. The wild varieties appear either singly or in simple groups; the cultivated often mass in large clumps. The fruit consists of a central stalk, generally white or cream in color and from one to 2½ inches in height, supporting a rounded, table-like cap, two to



Edible Chanterelle
Parasol Mushroom
Morel

Edible Boletus
Masked Tricholoma
Common Mushrooms

Shaggy Mane

Fairy Ring
Common Ink-Cap
Large Field Puffball

Beefsteak Mushroom
Pale Yellow Clavaria (a "coral" fungus)
Oyster Mushroom

A NUMBER OF THE BEST EDIBLE FUNGI (See the *Mushroom* and *Puffball* articles)

3½ inches in diameter, silky white or creamy in color—or scaly and brown (generally brown-spotted)—or (rarely here) silky grey. The gills are free from the stem, and are white and then pink in the button stage, becoming brown to blackish on maturity and exposure. The flesh is white. The common mushroom is served in many ways, both raw and cooked—some people consider it especially delicious when broiled.

There are many fungi superior in flavor, but the common mushroom has the advantage of being better known and more generally available. Its food value is also higher than the average, for its protein is to a greater degree assimilable.

The *Horse, or Field, Mushroom* (*Agaricus arvensis*) somewhat closely resembles the common mushroom but may be distinguished by its double ring, or collar. It also averages larger, and its cap, white when young and fresh, becomes yellowish with age or drying. It is desirable, though rather coarse, and is fairly well distributed.

BOLETUS. The several species of boletus are distinguished principally by small tubes, or holes, taking the place of the gills under the cap. They find much favor in France and Germany and grow freely in this country also. One of the largest and best is that illustrated, the *Edible Boletus,* its cap ranging up to six inches, or even more, in diameter, and varying from yellowish-brown to reddish-brown, the tubes changing at maturity from white to yellow or greenish-yellow, and the stem of about the same color or lighter. It is imported in considerable quantities, chiefly from France, preserved in olive oil, sauces, etc., being generally known by the French title of *cèpes.* It is noted for its strong flavor.

Others well distributed and good eating are the *Granulated Boletus,* named for the small, pinkish-brown granules dotting the stem—its cap, which is from 1½ to four inches broad, varying widely in color; and the *Rough-stemmed Boletus,* its stem roughened with small, prominent, reddish or brownish or blackish dots, or scales, and its cap varying from white to nearly black.

The first step toward serving any of these is to remove and discard the stem and tubes. This done, a good method of preparing them is to cut the cap into small pieces, set them in a covered dish with a little butter, milk, salt, and pepper, and bake for about half an hour.

No boletus with reddish tubes should be eaten, nor one with bitter or otherwise unpleasant flavor, nor which quickly changes to blue where bruised or roughly handled.

EDIBLE CHANTARELLE (*Cantharellus cibarius*), most commonly found in the woods in groups, but also in open grounds. Its cap, one to three inches broad, flat or centrally depressed, is of varying and irregular shape, but it is distinguished by its beautiful, egg-yellow color, which extends to all parts of the plant except the white inner flesh. The odor of the flesh frequently suggests a ripe plum. The gills are in the form of shallow folds growing down the stem. Chanterelles require long cooking and are improved by a previous soaking in warm milk for several hours.

CORAL MUSHROOMS. Of the several types, the *Pale Yellow Clavaria* (*Clavaria flava*) was chosen for illustration. It is a "bushy" fungus, two to six inches high, frequently appearing in woods during a warm, wet spell. In young specimens, the tips are more deeply colored than the lower parts of the branches, but they fade with age. The flesh is white, mild in flavor, and moderately tender when young.

Allied types of good edibility are the "Club" mushroom (*C. pistillaris*)—club-shaped, yellowish or brownish, two to six inches or so high, and an inch or more in diameter; and "Leaf Coral" (*Sparassis crispa*) with flattened white or yellowish branches in rosette form.

Fairy Ring Mushroom (*Marasmius oreades*), a small kind found principally in the autumn, in meadows, on lawns, etc., in wet weather or after heavy rains. It is so called because of its habit of growing in rings or circles. When young, the cap, from three-quarters of an inch to two inches in diameter, is reddish, yellowish-red, or yellowish-brown, becoming paler in maturing or as its moisture evaporates. When dry, it is generally of a buff color. The gills are broad and whitish or yellowish. The flesh is inclined to be tough except when fresh and young, but careful cooking makes it very palatable. It is good broiled for serving with steak, and also pickled and in sauces.

Ink-caps. Species of the *Coprinus,* or Ink-cap genus, are readily distinguished by their gills, and sometimes the caps themselves, melting into a black liquid at maturity. Their life above ground is very brief—they push through the soil in great numbers and develop and dissolve very rapidly. Those to be eaten should be gathered before they show any sign of expanding and should be cooked without delay. Their thin, tender, palatable flesh is generally digestible even by a squeamish stomach. They are harmless in the inky stage but they then present a far from attractive appearance.

The two best species are those illustrated, the *Common Ink-cap,* greyish, yellowish, or brownish, one to 2½ inches in cap width, and the *Shaggy Mane,* or Horse-

Gathering cultivated common mushrooms

tail, 1½ inches to 2½ inches in width, white with yellowish or brownish scales, and sometimes with lilac tints. Both of these, when young, have white gills and flesh.

A third species of value is the *Glistening Coprinus,* light tan to brown, almost equally good but much smaller, often found in abundance on dead trunks and stumps.

Ink-caps require little cooking. They are very good prepared "au gratin."

MASKED TRICHOLOMA (*Tricholoma personatum*), found chiefly in the autumn in open woods and long grass. Its cap ranges from two to five inches in diameter, and (together with the stem) has a more or less marked lilac or violet tint, with a dull pink look to the gills. With age, the lilac or violet changes to grey and the gills to reddish-brown.

MOREL. There are several species of the Morel (*Morchella*) genus, all similar and all edible. They are most frequently found in forests and wooded swamps, and are known by their deeply honeycombed caps—varying generally from oval to blunted conical—yellowish-brown when young but growing darker with age, from three-quarters of an inch to 1½ inches in width and generally longer than broad. They are excellent stuffed with cooked forcemeat and baked, or stewed as a vegetable, or in sauces. They require long cooking. Because of their formation they should be carefully washed.

PARASOL MUSHROOM, or TALL LEPIOTA (*Lepiota procera*), a handsome species which grows to large size—the cap width from three to six inches and the stem height from five to ten inches. It is found in grassy places and open woods. The young cap is somewhat egg-shaped and generally reddish or brownish. As it matures, the surface skin cracks and separates, giving the appearance of a lighter surface marked by reddish or brownish spots or scales. The gills are white when young, becoming yellowish or pinkish-brown in many mature specimens. It should be noted that the ring is movable, that the scales of the cap do not separate readily, that there is no green tint to the gills, and that there is no cap—or any piece of a cap—around the bulbous base. The flesh is thin, white, and soft. It is best broiled on a quick fire, and is a good mushroom for drying.

SHAGGY MANE. See its description in INK-CAPS, above.

Tree Mushrooms

BEEFSTEAK MUSHROOM, or LIVER FISTULINA (*Fistulina hepatica*), also known as "beefsteak fungus," "vegetable beefsteak," "beef tongue," and "oak tongue." Its cap—varying from two to six inches and more in breadth—has, when young, a rough, reddish surface which reminds one of beef tongue, and flesh streaked with red and with a reddish juice. Its flavor when cooked bears a distinct resemblance to meat, and it yields a rich, brown gravy. It should be sliced across the grain and soaked in salt water prior to cooking—which may be by broiling, stewing, in soup, etc.

OYSTER MUSHROOM (*Pleurotus ostreatus*), somewhat shell-shaped, white or ashy or creamy-brown on the upper surface and white or ashy on the under-parts, with white, rather tough, flesh. It grows on dead trees and wood, generally in the early fall, attached by a short side-stem or directly to the wood without any stem at all. The shells vary in size, with a maximum width of about four inches. Small specimens (or pieces of large tender ones) are good breaded and fried.

Of the same genus and closely resembling it is the *Sapid Mushroom* (*P. sapidus*).

A third species is the *Elm Tree Pleurotus* (*P. ulmarius*) which grows most freely on stumps and dead branches of elm-trees. Its cap, two to five inches broad, is generally whitish, often with a central tinting of reddish or brownish-yellow.

MUSKRAT, or Musquash, an aquatic rodent, frequenter of ponds, marshes, rivers, and lakes, found generally throughout North America, resembling the common rat in general appearance and the beaver in many of its habits. Its average size is that of a small rabbit, its body attaining a length of ten to twelve inches. Among its distinguishing characteristics are its partially webbed hind feet and its long, scaly tail, laterally flattened. It is commercially valuable for its skin—with dark-brown fur above and greyish on the under-parts—which within recent years has risen greatly in market price, the supply seldom equaling the demand. Dyed or of natural color, and variously processed, it becomes "Hudson seal" and "river mink." "Black muskrat"—the most valuable from the fur-dealer's standpoint—is a variety with very dark skins caught chiefly in the Chesapeake and Delaware regions. The flesh of the animal is also worthy of consideration, for (properly prepared) it makes an agreeable dish—particularly so if the animal has been, as he usually is, on a diet of water-plants, fruits, and vegetables. The most generally acceptable method is to soak it in salt water for an hour or so, or overnight, then to cut it up and slowly stew it with a small quantity of pork, cut in dice, onions and other vegetables, and herbs. A considerable number of the little animals are marketed in the larger cities, especially in Canada, under their own name and various other appellations—as "marsh rabbits," etc.

MUSSEL, or Sea-mussel, an almond-shaped, bivalve shellfish, cheap and plentiful, found along both the Atlantic and Pacific coasts, favoring most the brackish waters of protected bays and estuaries. Many connoisseurs consider it as palatable as the

Jacques Boyer, Paris

Harvesting mussels from special raising basins on the French island of Oléron oyster but it has never attained popular favor here. Great quantities are consumed in Holland and France as food, and among English fishermen as bait. It can be eaten raw like the oyster, but is generally cooked—and is better in that form, as the raw flesh is tougher than that of either the oyster or clam. Any oyster or clam receipt is suitable, except that in chowders, etc., fewer mussels are required because of their stronger flavor. A fair-sized specimen is about two inches in length—and twice that size is not uncommon.

The fresh-water mussel is an entirely different bivalve, gathered for its pearls and mother-of-pearl.

MUST, the juice of ripe grapes expressed for fermentation. Also, potato-pulp prepared for the same purpose.

MUSTARD, the condiment, has as its basis the blended flours of the crushed seeds of one or more species of mustard-plants—chiefly of the small, irregularly shaped seeds (dark brown on the outside, yellow within) of the Black, or "brown," mustard (*Brassica nigra*), together with a certain proportion of the smooth yellow, or pale brown, seeds of the White mustard (*B. alba.*)

Both plants grow easily under cultivation, and in parts of the country have run wild as an obnoxious weed. Their maximum height in England is from two to three feet, but in California they will exceed sixteen!

Mustard-seed was used medicinally by the most celebrated physicians of antiquity. As a condiment, it dates from the latter part of the sixteenth century, being though little known until the year 1720 when an old woman of the name of Clements, residing in Durham, England, began to grind the seed in a mill and to pass the flour through the several processes necessary to free it from the husks. She kept the secret of her methods for many years, selling large quantities throughout the country, especially in London. The product obtained the name of "Durham mustard" from her residence in that city.

All the early mustards which followed in the train of the Durham product were, like the first Durham, essentially pure sifted mustard-seed flour. Then some manufacturers discovered that they could please the public palate better by modifying the pungency of the flavor, and the result is that to-day one finds a numerous variety of blends and mixtures—many of the most popular kinds consisting of from 50% to 75% vinegar, flour-thickening, and various added condiments. The pure mustard-flour remains however easily obtainable by those who prefer it.

In moistening, or "mixing," dry mustard, or mustard-flour, two main objects must be kept in view—first, to obtain the desired consistence; second, to make it perfectly smooth. To produce these effects, add the liquid in small quantities and rub and pound the mustard well with a spoon. The simplest form of preparation consists of mustard-flour moistened with sufficient water to produce the consistence of thick batter, with half a teaspoonful of salt added for each two ounces of mustard-flour. Some people like fine powdered sugar included in the same proportion as salt. Vinegar and olive oil can be used according to taste, but some cold water is desirable for the first mixing in order to develop the fullest pungency. Vinegar without water will bring out a very considerable pungency, but oil alone leaves it bland. If for immediate use, milk or milk and cream may be employed in place of either vinegar or oil. Milk alone will give marked pungency; cream alone, a good deal less.

MUSTARD SALADS AND GREENS. Several species of mustard-plants are grown for their young leaves, to be used as salads and greens. Both the Black and White condiment species are thus utilized (the White yielding milder leaves and being therefore generally preferred), and also (among others) the Potherb mustard (*Brassica japonica*) and the Chinese Mustard (which see), the two latter chiefly as greens. Potherb mustard has soft, thin, crisped or fine-cut leaves.

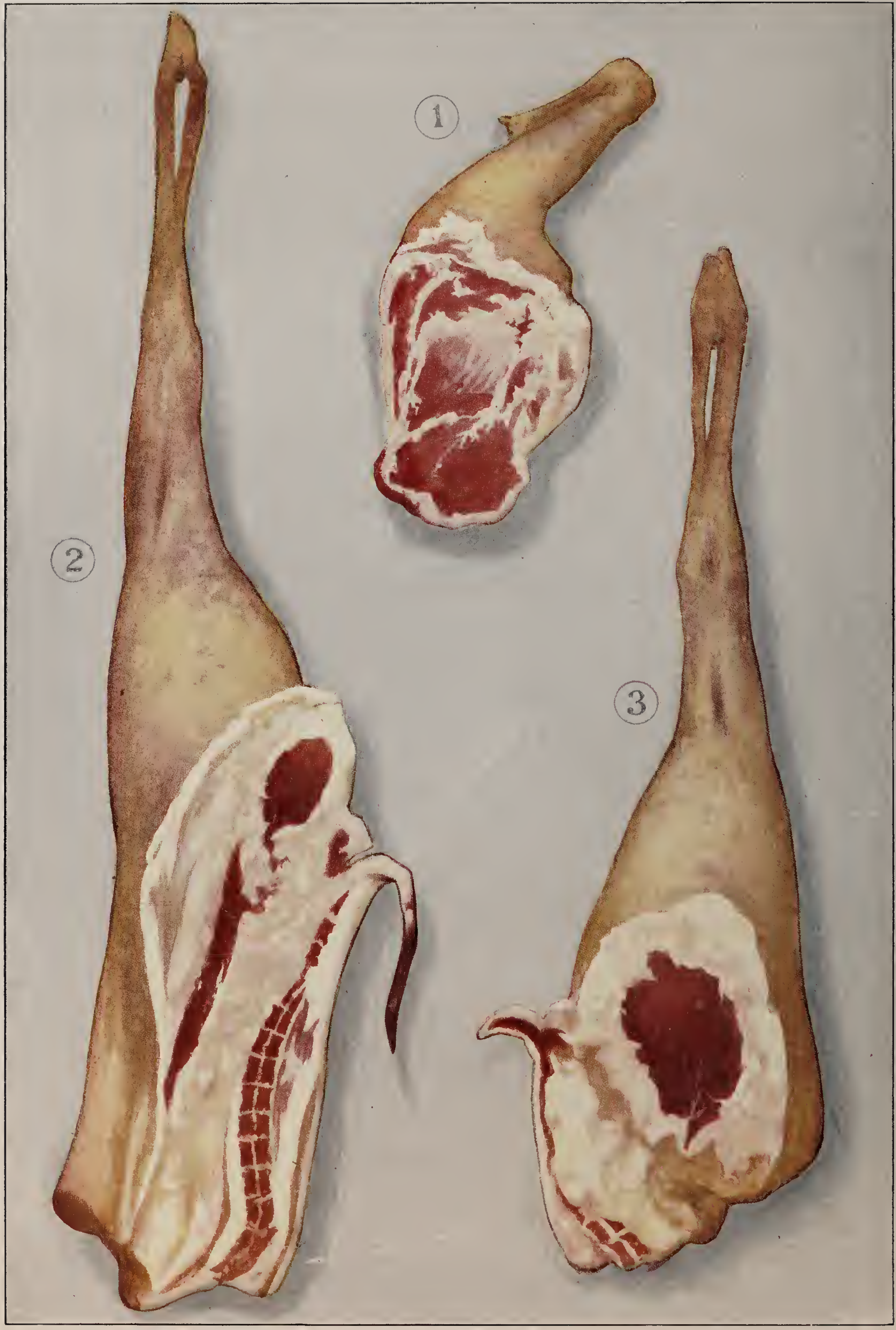
Mustard and Cress, a salad popular in England, is made of young sprouts of the White mustard and garden-cress (see Cress), the growth being forced and the leaves cut when from 1½ to 2 inches high. Rape is frequently substituted for mustard and is considered preferable by some people—the flavor is not so pungent but the leaves are stiffer and keep fresh longer.

MUTTON, the dressed flesh of the sheep after it has passed the lamb stage (see Lamb). It is preferably of a sheep not over—or at all events not much over—two years of age, as otherwise the fat is liable to have a tallowy flavor. It is generally best in the winter, then being usually more delicate and juicy.

Quality depends chiefly on the breed and the feeding of the sheep; also to some extent on the sex. The wether (the castrated male) is the best but is not often obtainable at a desirable age for mutton—it is, commonly, either slaughtered earlier for lamb or held for wool. Next in line are ewes. Rams are undesirable—their flesh is coarse in texture and over-strong in flavor. In England and France both breeding and feeding have received more attention than in the United States but

Brown Bros.

A sheep ranch near Lethbridge, Alberta

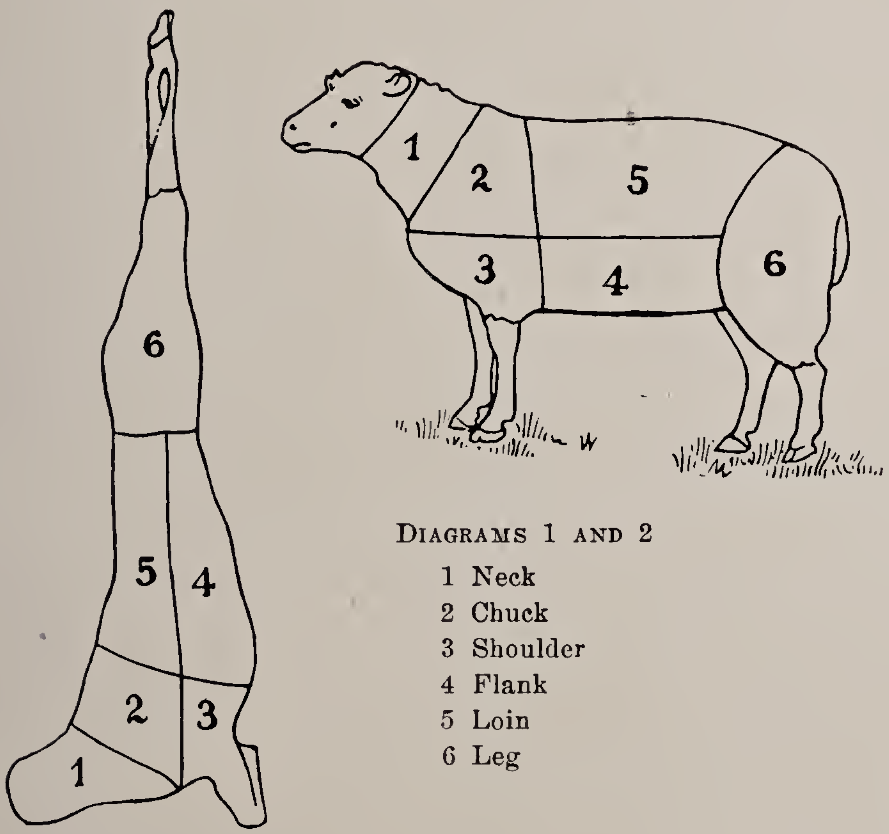


(2) Hind Quarter (1) Shoulder (3) Leg
MUTTON

our domestic product is steadily improving. The lean should be fine-grained and firm and of darkish, clear red color, and the fat firm and white. If the flesh is flabby or the kidney-fat soft, it is from a poor carcass.

Diagrams 1 and 2 show a division of the carcass practised in many parts of the country. Diagram 3 is a well recognized eastern method. The weight of a dressed carcass ranges generally from fifty to a hundred pounds. The choicest flesh is from those weighing from ninety to a hundred. See also the color-plate opposite.

The description in the Department of Agriculture Bulletin accompanying Diagrams 1 and 2 comments on the fact that the cuts in a side of lamb or mutton generally number only six, three in each quarter. The chuck includes the ribs as far as the end of the shoulder-blades; the loin reaches from the chuck back to the leg; and the flank is made to include all the under-side of the animal. Some butchers make a larger number of cuts from the forequarter, taking a portion of the loin and chuck to make a cut known as "rib"; and part of the flank and shoulder as "brisket."



Diagrams 1 and 2

1 Neck
2 Chuck
3 Shoulder
4 Flank
5 Loin
6 Leg

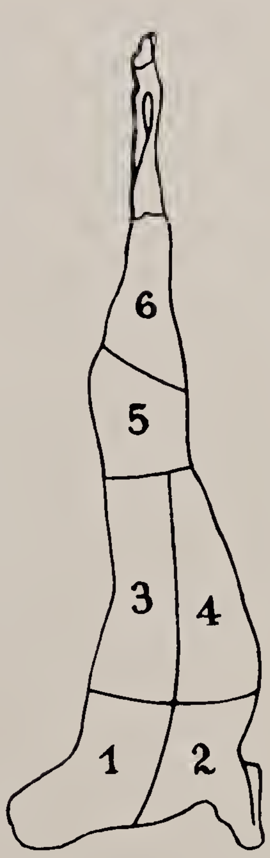


Diagram 3

1 Neck
2 Shoulder
3 Rack or Chops
4 Breast
5 Loin
6 Leg

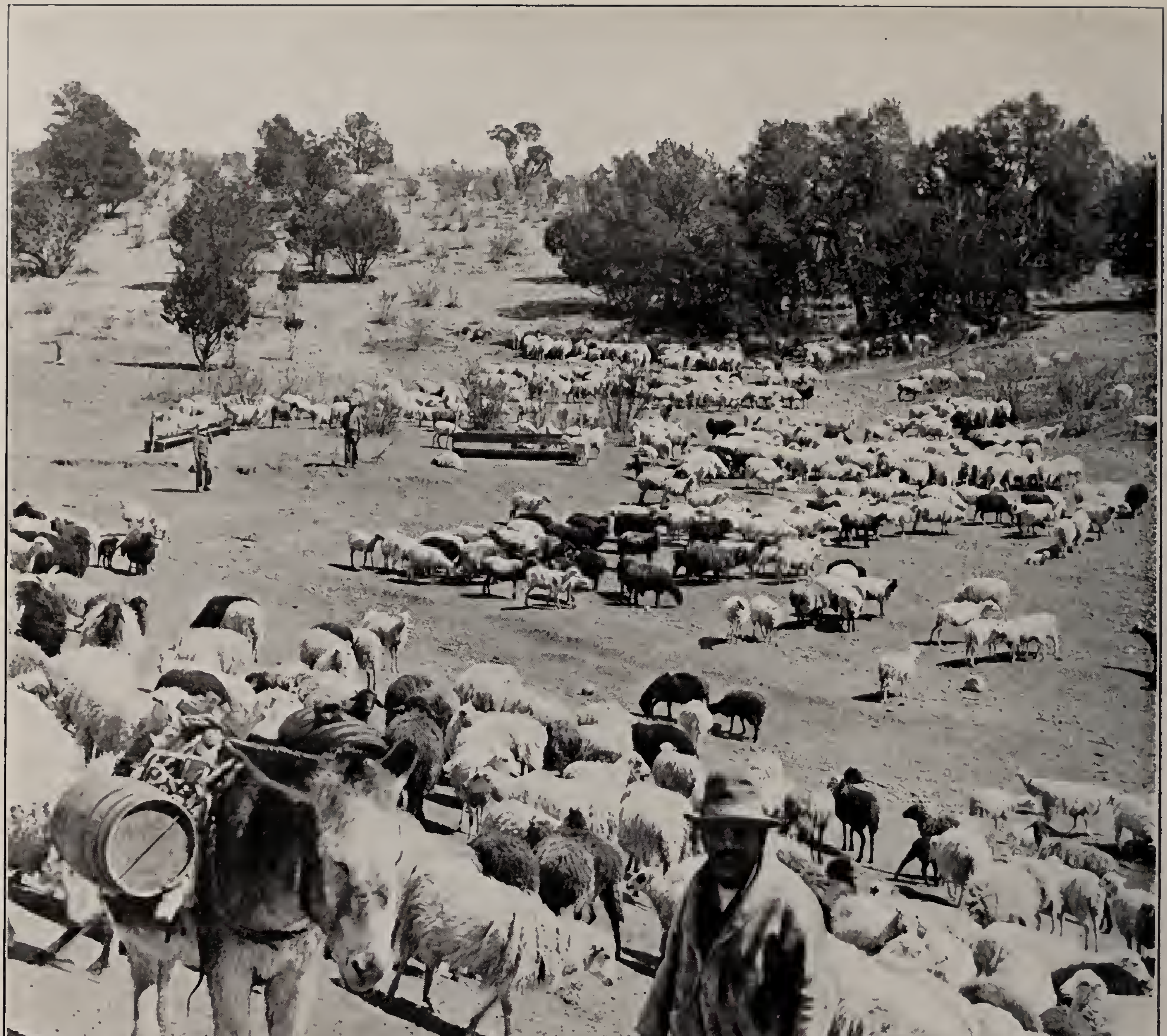
Forequarter—1, 2, 3, 4
Hindquarter—5, 6

The term "chops" is ordinarily used to designate portions of either the loin, ribs, chuck, or shoulder, cut (or "chopped") by the butcher into pieces suitable for frying or broiling. The so-called "French chops" are from the "rack," a term applied to the chuck and ribs.

The tenderest part of the sheep, as of other meat animals, is the tenderloin—hence the traditional popularity of the true mutton-chop. An "English mutton-chop" is, in general principles, a chop cut especially thick.

The most economical joint is the hind leg—if of a good carcass it shows a very small percentage of waste.

Many Americans harbor a prejudice against the use of mutton, finding the flesh excessively "muttony," or "sheepy," or "woolly." This is due to the poor stock



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A NEW-MEXICAN SHEEP-RANCH. The white sheep are Rambouillet merinos. The grey sheep and their black lambs are of Karakul ("Persian lamb") strain formerly sold here—many of the animals slaughtered were of breeds unsuitable for mutton, ill-fed, badly cared for, and old. The flesh of a young, well-bred, well-fed sheep, guarded from foreign odors and kept in a good refrigerator, is as tender, nutritious, and finely flavored a meat as any one could wish to enjoy.

It is particularly important that mutton should be kept from exposure to the air or to any strong smelling foods or other odors, for it absorbs odors more readily than other meats do. For the same reason, any pieces of fat or skin which smell too "muttony" should be trimmed off.

It is this faculty of absorption that makes both lamb and mutton especially suitable for stews or ragouts, for they draw into and incorporate with themselves the aromas and flavors of the various herbs and vegetables cooked with them.

To be avoided in the case of both lamb and mutton is the use of an excess of fat—the meat that goes into the stew or ragout should indeed be trimmed almost clear or the result may grievously offend a fastidious stomach. This is especially the case with mutton because of the high melting-point of its fat.

A sharp sauce—as caper or horseradish—is also recommended for service with boiled mutton, and the gravy which accompanies a roast may be acidulated by the addition of currant jelly.

In this country the preference is for lamb instead of mutton. In England the reverse is the case.

The most famous English product is the "Southdown mutton," and its unique reputation persists despite the high merit of the more profitable mutton secured by crossing "Southdowns" with other breeds. Its fine flavor has been attributed to a little insect flourishing in the fine pastures of the Sussex downs. In France the best is the *pré salé* ("salt field"), so called because the sheep browse on the absinthe-mixed herbage of the salt marshes along the seacoast.

MUTTON BROTH, with various additions, as barley, is often acceptable to people, even to convalescents, who do not like mutton flesh. It should, however, be remembered that, if it be a fine, clear, skimmed product, the broth itself contains practically no nutritive material—it consists essentially of extractives (being thus in the same class as beef tea, see BEEF EXTRACT) and some gelatin.

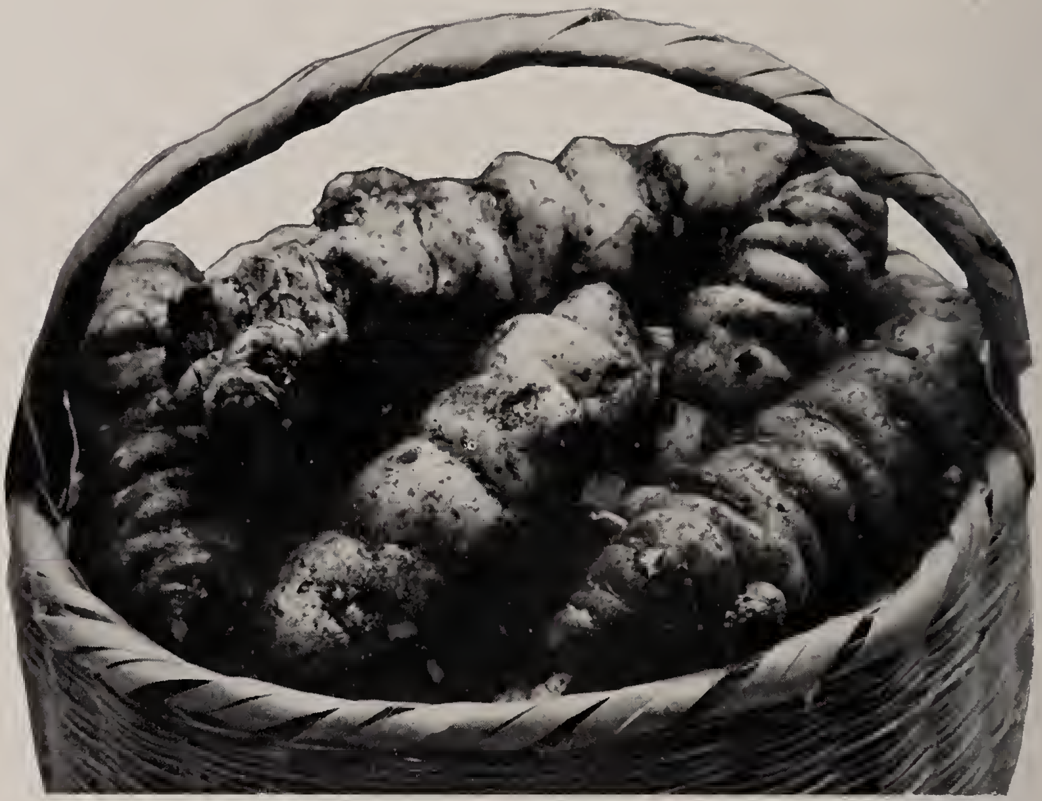
MYRTLE, a genus of sub-tropical, fragrant, evergreen shrubs or small trees. The most widely known species is *Myrtus communis,* the classic myrtle, which flourishes in southern Florida and southern California. The purplish or black fruits of several of its varieties are both eaten fresh and dried for use as a condiment; and the leaves and wood yield an oil used in the arts, medicine, and perfumery.

The best of the myrtles as a fruit producer is, however, a separate species, *M. ugni,* the Chilean myrtle—a shrub or a tree according to climate and environment. Its glossy, roundish, red or black berries, known also as "Chilean guavas," are delightful both in aroma and flavor.

The tree giving "myrtle wax," which is locally known as the "tallow" or "candleberry" tree, is of a different genus.

NASTURTIUM, or Indian Cress, a plant native to South America, which is cultivated here principally for its brilliant blossoms. The common species possesses merit as a salad-plant (especially for blending with other salads), the leaves. young shoots, and flower-buds being agreeably pungent. The pickled seed-pods are frequently substituted for capers.

Botanically, the use of the name "nasturtium" is now restricted to the Watercress (*Nasturtium aquaticum*), which see.



Brown Bros.

Tubers of the tuberous-rooted nasturtium

Tuberous-rooted Nasturtium, a species which furnishes edible roots of red-streaked yellow color and about the size of a hen's egg or a little longer, of cone-shape, marked with numerous warty swellings. As a first step toward their consumption, South-Americans generally semi-dry them by exposure to the air suspended in nets—then preparing them in various ways. The fresh roots are also eaten plain-boiled. They have an agreeable and refreshing aroma, but they are over-watery and not particularly pleasing in flavor. In some mountainous districts they are considered a delicacy when frozen after boiling. French market-gardeners cultivate them to a limited extent in much the same way as the ordinary potato.

NECTAR, the fabled drink of the mythological deities, now a term applied to any especially sweet and pleasing beverage. The nectar of flowers is the source of Honey (which see).

NECTARINE, a variation from the ordinary peach, distinguished by the smoothness of its skin. The plant distinction is not absolute, for peaches may grow from nectarine-seeds, and nectarines from peach-seeds—and both peaches and nectarines have been gathered from the same tree. Nectarines are in this country cultivated chiefly in California and Oregon. Nearly all the commercial crop is canned or dried, even the best of the fresh fruits being inferior to choice peaches. There are many different varieties—divided, as peaches, into "freestones" and "clingstones." The "white" types are preferred by planters.

NEEDLEFISH. See Garfish.

NEROLI, or Orange-flower Oil, and Orange-flower Water. Neroli is the essential oil of orange-blossoms, obtained by distillation. It is used in the manufacture of perfumery and soaps, in sirups, etc. The commercial product is from the blossoms of the Seville, or Sour, orange (see subhead in the article on Oranges), and enormous quantities are annually treated in France, the greater part of the supply being obtained from the specially developed variety known as *le bouquetier,* or "nosegay-plant," which furnishes the orange-blossoms of the European florist. The flowers are similar to those of the Sweet orange, but instead of appearing singly, they grow in thick clusters. There are some strains with double blossoms and others with myrtle and purplish-white flowers.

South America is also important as a source of neroli—in Paraguay, the wild groves are dotted with numerous small establishments devoted to the industry.

Minor grades are distilled from the leaves and twigs.

Orange-flower water is the fragrant liquid left after the distillation of neroli. It also is employed in making sirups, perfumery, soaps, etc., and was formerly much used in the preparation of various desserts.

NOODLES, a product of increasing popularity which originated in Germany and has been in use there for centuries. They resemble the flat forms of Italian paste described in the article on Macaroni. They differ, however, in two important respects—they are made from ordinary wheat-flour instead of semolina and (if of commercial manufacture) they must, by United States standards, contain not less than 5% of egg solids (exclusive of the shells), this regulation applying whether they are called "egg noodles" or simply "noodles." As an egg is nearly three-quarters water, this requirement signifies that each pound of noodles must represent the inclusion of about two eggs of average size. Dried eggs, both domestic and imported, are generally used. If noodles contain less than 5% of egg solids, they must be sold as "plain noodles" or "water noodles."

A device to be guarded against is the addition of yellow dye in order to give the appearance of egg content.

Noodles are retailed both in bulk and packages—chiefly in strips of three standard sizes, the smallest one-sixteenth inch in width and the largest one-half inch, but also in fancy shapes, "alphabets," etc. In manufacture, the dough is pressed through rollers into large thin sheets, cut into various sizes and forms by special machines, and then carefully and thoroughly dried. Properly made, they will keep for six months or even longer if stored in a cool, dry place and protected from changes of atmosphere.

Until a few years ago it was the custom to import noodles from Germany, but domestic manufacturers now supply the market. New York, Philadelphia, Chicago, and Cleveland are among the most important centers of the industry, which is of considerable proportions as housewives find it cheaper and easier to buy noodles than to make them.

Noodles of the best grades, made of fresh eggs and selected wheat-flour, are highly nutritious and are so easily digested even by delicate stomachs that they are frequently recommended for invalids and convalescents. The "fine" size is much used in soups, tasting particularly good in bouillon and consommé. The broader types are frequently served as a separate dish—cooked in slightly salted, boiling water, for service either with meats or with cooked berries, etc.; or baked like macaroni with cheese; or stewed with tomatoes and butter — and fashioned into sweet dishes such as noodle charlotte.

NUTS. Among the most popular nuts of general use are almonds, Brazil-nuts, chestnuts, coconuts, filberts, hickory-nuts, pecans, pine-nuts, pistachio-nuts, and walnuts. With the exception of the Brazil-nut, all of these are now grown to at least some extent in the United States. California raises big crops of almonds and walnuts, and Louisiana and Texas are noted for pecans, both of wild trees and orchard plantings.

Of imported nuts, almonds come principally from Spain; Brazil-nuts from the Brazilian states of Para, Amazonas, and Maranhao; chestnuts from Italy, Spain Portugal, and Japan; coconuts from the West Indies and Central and South America, the Philippines, and the South Sea Islands; filberts from Italy, Spain, and Turkey; pistachios from Sicily; and walnuts from France, China, Italy, and Japan.

Nuts contain a large amount of nutriment in concentrated form, and are (under proper conditions) well assimilated. Most of those of popular consumption consist chiefly of oil and protein. The fat percentage runs very high—up to nearly 71% in the pecan—and the protein also is in several kinds considerably above that of a majority of either animal or vegetable foods. A few, as chestnuts, chufas, and gingko-nuts, substitute carbohydrates (starch, sugar, etc.) as the principal component. The meat of three walnuts, or fifteen single peanuts, or two Brazil-nuts, or ten almonds, or five pecans—all of medium size—or about the same weight as the meats of any others of the common oily nuts — represents approximately as much energy food as two ordinary slices of white bread, or a cup of cooked oatmeal, or a rounded tablespoonful of granulated white sugar. For chestnuts, or other starchy nuts, nearly three times the weight is needed to secure a calorie equivalent. The general mineral content is good, but the vitamin value is negligible except for the widely distributed B. (See also FOOD VALUES.)

The constantly increasing consumption of nuts throughout the United States augurs well for a better appreciation of their food value by all classes—they are no longer regarded exclusively as a luxury, or as something to be eaten out of hand at odd times. They should be well chewed—or, better still, ground and then chewed—and should be considered from the same standpoint as the meat or other substantial portion of a meal—they should not be eaten as a delicacy after the stomach is already loaded with a heavy repast. To this latter practise is due much of their reputation for indigestibility. Nuts with leathery skins should be peeled before eating. Parboiling will usually make peeling easy. Drying must speedily follow parboiling, or loss of flavor will result.

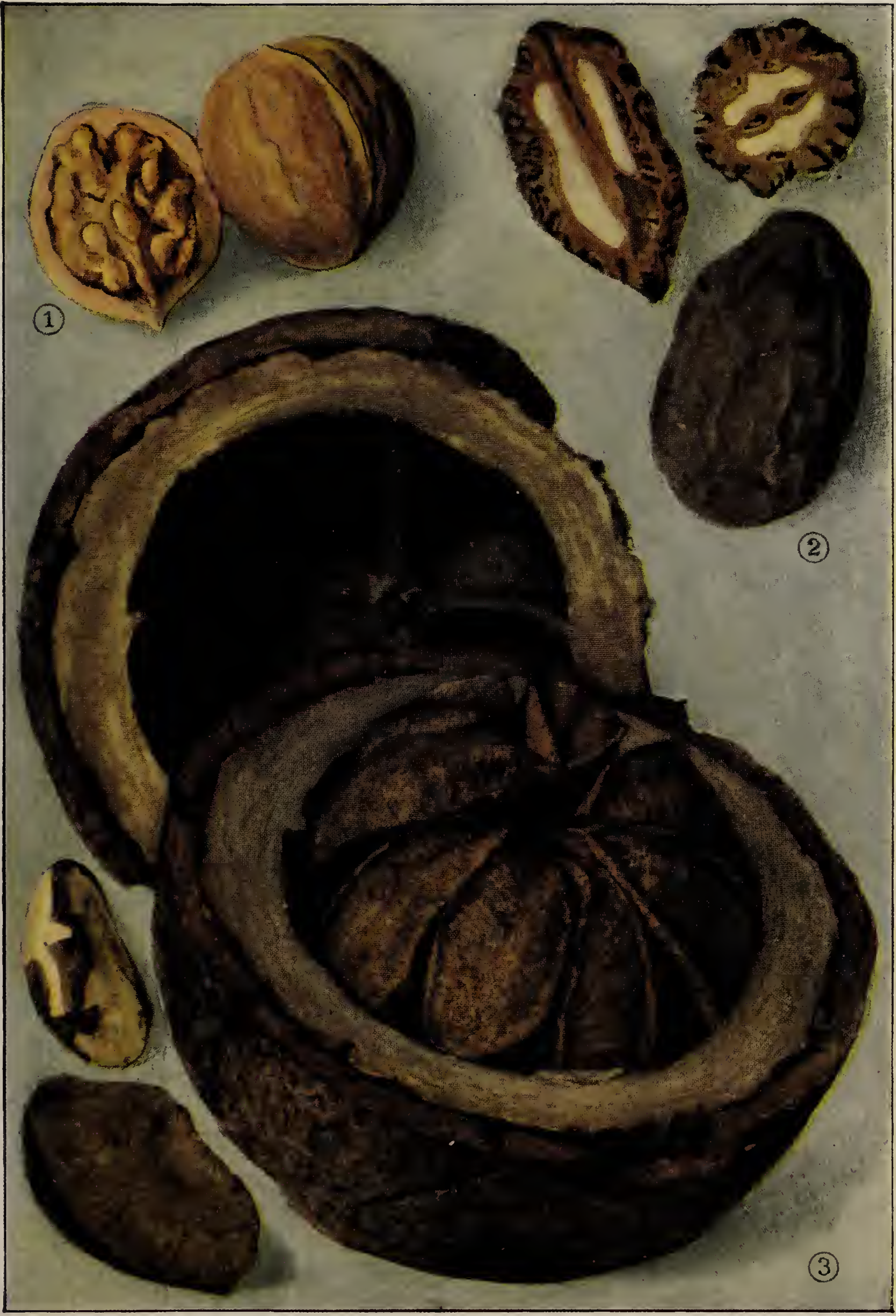
Nut pastes and "butters" are growing in favor, both for home consumption and in confectionery manufacture. They are an agreeable and very desirable addition to the daily diet. They are best bought in small pots or glasses as they are liable to become rancid if kept long after opening.

Nuts can be carried safely in winter by storing in a cool, dry place, but cold storage at a temperature just above freezing is the only sure method of preserving them during the summer, and the only practical policy if the quantity is considerable.

See also the special articles on individual nuts.

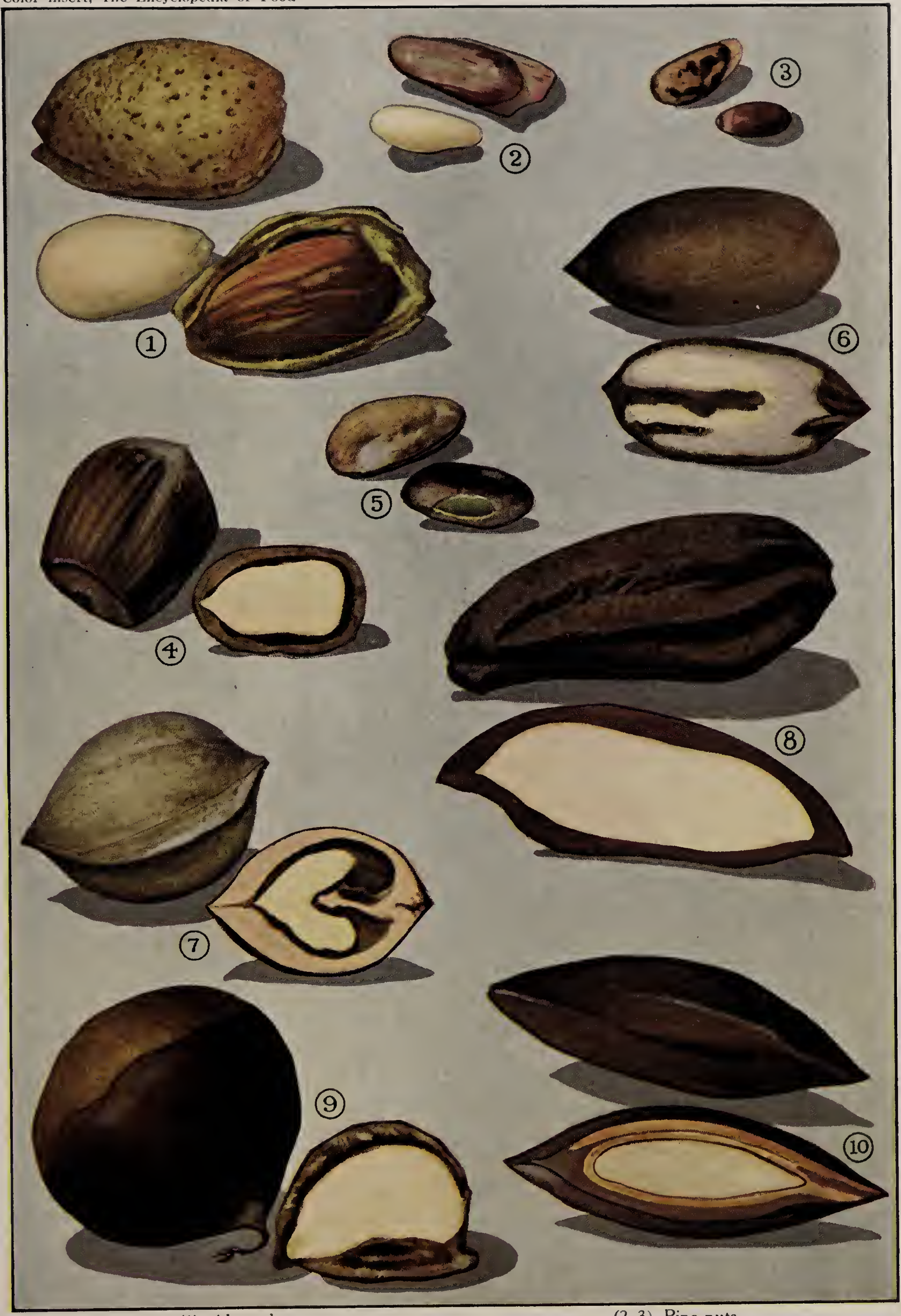
NUT-BUTTER, or Nut-margarin, artificial butter made by churning refined and neutralized nut oils—chiefly, in this country, coconut oil, alone or with peanut oil—and cultured milk. It is a good imitation of butter—both in flavor and (when colored) in appearance, but for children's consumption is subject to the criticism of its lower vitamin content and of its benzoate of soda addition.

See also OLEOMARGARIN and the article on FOOD VALUES.



(1) Walnuts (2) Butternuts

(3) Brazil-nuts



(1) Almond
(4) Filbert
(7) Hickory-nut
(9) Chestnut

(5) Pistachio-nut

(2, 3) Pine-nuts
(6) Pecan
(8) Paradise-nut
(10) Pili-nut

NUTMEG (see the color-page facing 348), the kernel of the fruit of a tropical tree native to the East Indies. The typical fruit is in shape between roundish and pear-style, two inches or less in its greatest diameter, and reddish-yellowish of skin. On maturity, it splits in two, exposing a pink or red aril more or less completely covering the hard, brown shell which encloses the kernel. This aril is the other popular spice known as MACE (which see). In the East Indies the whole fruit is often preserved entire in sirup.

The tree begins bearing at the age of about eight years, and continues to yield for half a century or more. In its wild state it may reach seventy feet in height. In cultivation, its growth is generally restricted to twenty-five feet or thereabouts —this increasing its productivity and making harvesting easier. It carries ripe fruit at all seasons, but there are three principal harvest periods—July, when the fruit is most abundant, but yields thin mace; November, when the fruit is fleshiest, but the nutmegs are small; and March, when both nutmegs and mace attain their finest condition, but the total product is less in quantity on account of the dryness of the season.

After the fruits have been gathered and the outer coverings of flesh and mace have been stripped off, the pits are placed upon gratings over slow fires and dried at a low heat (not over 140° Fahr.) until the kernel rattles freely in the shell, the process consuming several weeks. The shells are next cracked and removed. As a last step, the general practise is to sprinkle the kernels with lime in order to protect them from the attacks of insects and to destroy their power of germination. The latter purpose is sometimes effected instead by exposure to the tropical sun for a few days. Finally comes packing for

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Nutmegs, Kingston, Jamaica

export in tight casks, previously well inner-coated with limewash. In this condition they will keep indefinitely.

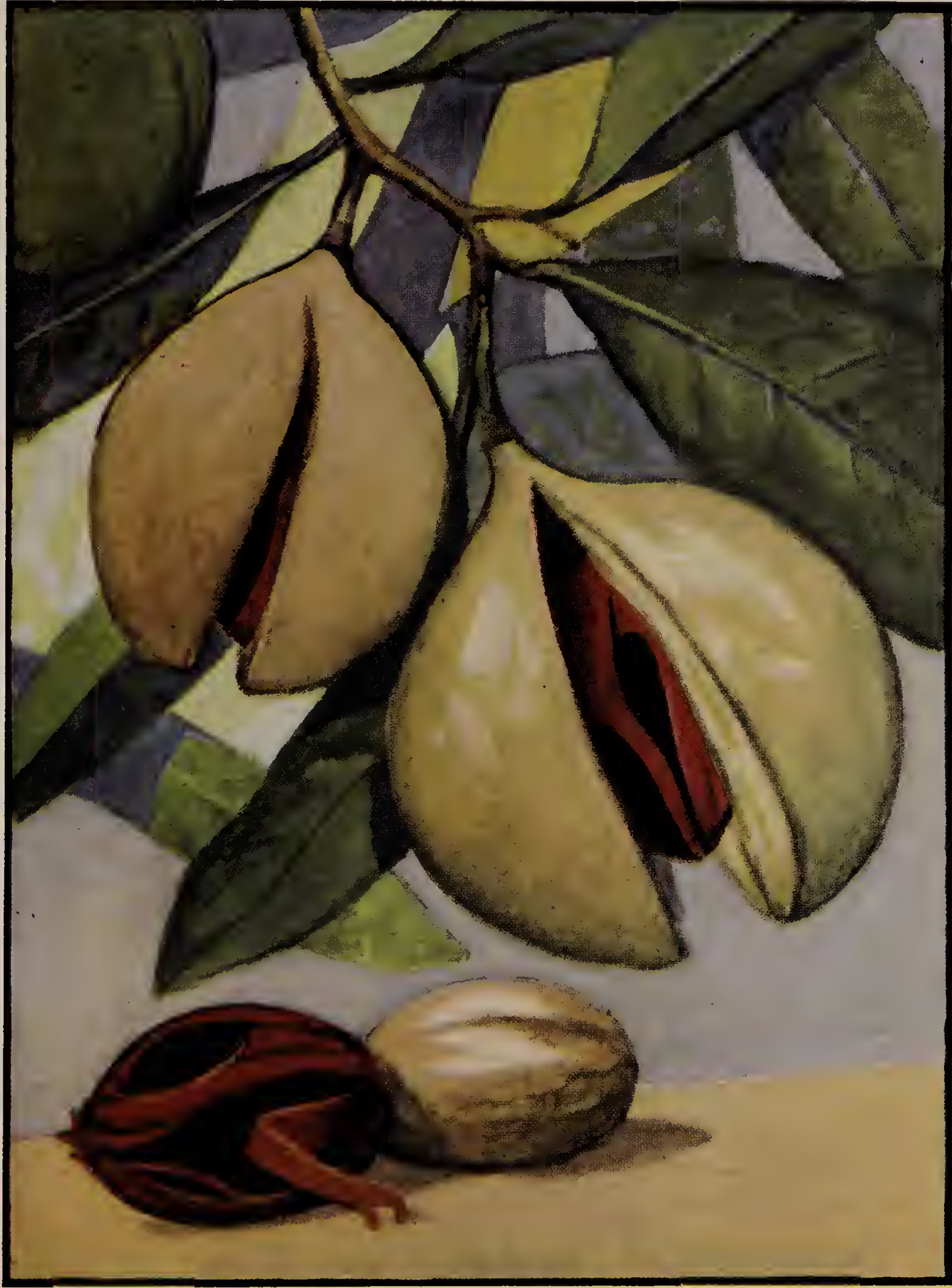
The greater part of the world's supply of both nutmeg and mace comes from the Dutch East Indies—especially from the little Banda Islands, which are practically covered with nutmeg-trees growing under the protecting shade of the tall evergreen Canaris. There is also an important and increasing export from the British West Indies, particularly from the island of Grenada.

Cultivation could be extended in many suitable tropical countries, but modern prices are not so inducive or profitable as those of earlier days when a pound of mace was worth as much as three sheep and two pounds as much as a cow!

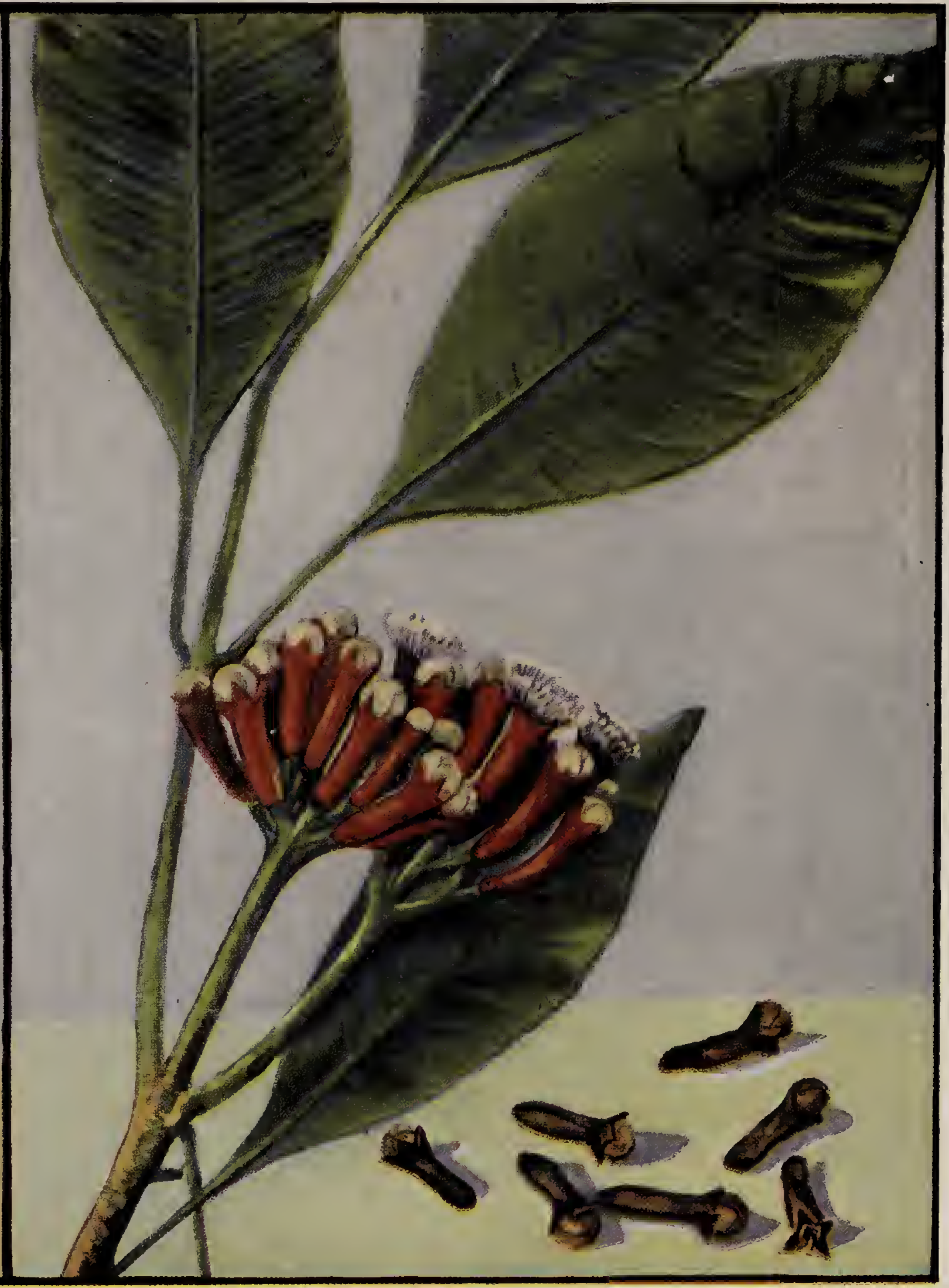
There are many other seeds and fruits hopefully styled "nutmegs," some of them agreeable in flavor and aroma, but none of them is of sufficient merit to make substitution desirable or justifiable. Among the best known are the "Macassar nutmeg," or "long nutmeg," or "Papua nutmeg," etc., of the East Indies (*Myristica argentea*); and the "American," or "Jamaica," or "Mexican," or "calabash" of tropical America (*Monodora myristica*).

In purchasing nutmegs, choose those which are round and compact, of oily appearance and heavy. They are graded by the number to the pound—varying from 80 to

Nutmeg-trees, Singapore



NUTMEGS—the whole fruit, the mace covering the nut, and the kernel, which is the "nutmeg" proper



CLOVE flower-buds and blossoms and the spice—the dried flower-buds

140. The largest are the more showy, but those of moderate size, other points being equal, are just as good. Light-weight, dried, dull kinds, or those long and oval, should be avoided.

Ready-grated nutmeg in a sift-top can is a convenient form for household use —provided of course that it is fresh. It will not retain its merit as long as whole nutmeg.

The United States is the greatest nutmeg consumer—taking more than half of the world crop.

NUTMEG BUTTER. See *Oil of mace* in the article on MACE.

NUT OILS. Many nuts yield oils of value and wide use as food. Prominent among them are the almond, coconut, peanut, and walnut, all of which are treated in their alphabetical positions.

OAT (see the color-page opposite 558), a grain widely cultivated as food for men and horses—especially in the northern parts of Europe and North America. As a plant its chief type division is into "spreading" (or "open") and "sided" (or "closed," or "banner") oats, the reference being to the arrangement and appearance of the flower panicle. There are further numerous divisions by the size of the grain, its color, etc. The white and yellow kinds are preferred for human use.

The oat is rich in protein and contains more fat than any other of the grains generally consumed. In this country, it is used very little for human food purposes

Gilliams Service

Harvesting oats

except as a cereal or as "groats" or "grits" in the preparation of gruel; in other parts of the world it is employed in a diversity of ways. It cannot be leavened into bread because it lacks the proportion of gliadin found in the gluten of wheat, but it makes excellent "cakes."

See also Oatmeal following.

OATMEAL. The title "oatmeal," though properly applicable only to the ground meal of the grain, is commonly applied indifferently to both ground and "rolled" oats. It was formerly retailed principally in bulk, but to-day package-goods are almost exclusively used. The change has been of great advantage to both merchant and consumer, for oatmeal exposed to the air, as in the ordinary bin, is much subject to depreciation in flavor—and consequently in value. Unless packed in airtight boxes or bags it rapidly becomes "old" and acquires a disagreeably bitter taste. Even in packages, a quick turnover of a retailer's stock is essential to the clean, fresh flavor desired unless his storage conditions are better than is usually the case.

In manufacture, the grain is cleaned by various processes, sorted for size, kiln-dried—which loosens the hull and also develops the nutty flavor of the kernel—cleaned again, put through machines which remove the hulls, and then sterilized—this being generally the final episode of the whole kernel.

For *Rolled oats,* the husked, sterilized grains go to heated rolls which flatten them into the flakes familiar to the consumer, the rolling being followed by additional cleansing processes to loosen and remove the fine particles of floury matter, etc., before the flakes are filled into the packages. Fully 90% of the present consumption of oatmeal in this country is of this semi-cooked "rolled oats" kind, which owes much of its popularity to its easier preparation for the table.

Oatmeal, other than rolled, is divided into two classes: *Steel-cut,* in three sizes, and *Ground,* graded from Coarse to Extra-Fine. Steel-cut is obtained by passing the groats through cutting machines. Ground oatmeal is steel-cut oatmeal ground between corrugated steel rolls.

The great vogue of oatmeal as a breakfast cereal is a recent development for the United States—a generation or two ago it was little used here except in the preparation of gruel for invalids!

In Scotland, the most popular form of consumption is as "brose"—the raw meal hastily mixed with boiling water or broth (see Brose). If more diluted and then thickened by longer boiling, it becomes "porridge." The coarse meal is also cooked in thick cakes called "bannocks," and finer qualities in thin cakes or wafers. Another palatable dish is made by toasting the meal before a bright fire, then mixing it with a little beef or mutton fat, pepper, salt, and fine-chopped onions and again toasting.

In Ireland, oatmeal is mixed with cornmeal—or either may be taken separately—and stirred into boiling water or whey and milk, the result being known as "stir-about."

In Norway, a common food among the peasantry is a thin cake, called "flat brod," made of ground oats, husk and all, mixed sometimes with barley-meal, potatoes, or peameal, baked on a griddle or frying-pan.

See also articles on Cereals, Food Values, and Gruel.

OCA. See Oka.

OIL. Oils are divided according to their sources as animal, vegetable, and mineral; or for various specific purposes, as edible and industrial, cold drawn and otherwise, fixed and essential, drying and non-drying.

Animal oils may be divided into those from (1) fishes and marine mammals, as menhaden and whale oil for industrial purposes, and cod liver oil; and (2) land animals, as lard oil, oleo oil, and neatsfoot oil.

Fixed oils are those which, under ordinary temperature, leave a permanent greasy residue on any substance, as paper. The classification includes the majority of the vegetable oils of general use, the heavier mineral oils, and all the animal oils.

The chief vegetable fixed oils are almond, castor, coconut, corn, cottonseed, hemp, linseed, olive, palm, palm-kernel, peanut, poppy-seed, rape, sesame, soy-bean, sunflower, and walnut. ''Cold drawn,'' or ''cold pressed,'' or ''virgin'' oil, the highest grade of vegetable fixed oil, is that obtained by the first expression, without heat or chemical additions. The general rule in the treatment of fruits and seeds which give edible oils, is to use cold-expression first to obtain the edible grades, then to extract the remaining oil after heating or chemical treatment (or both) for industrial purposes. The hot expression always changes the character of the oil and in some cases entirely alters the flavor.

Essential oils are those which possess the characteristic odor of the plant or its seed, etc. They constitute the chief source of the aroma and flavor of coffee, tea, and spices. They speedily evaporate in ordinary temperatures—hence their alternative title of ''volatile oils.'' They are soluble in alcohol, ether, fatty oils, and mineral oils, but only to a limited extent in water. Both the natural and synthetic products are used in great variety by the perfumer, in medical practise, and in the manufacture of flavoring extracts for food purposes (see FLAVORING EXTRACTS).

Drying oils—as hemp, linseed, poppy, sunflower, walnut, and some whale oils—are those which on contact with the air quickly form a tough skin and are therefore suitable for use in the manufacture of paints and varnishes. Corn, cottonseed, rape, sesame, soy-bean, and most whale oils are ''partial,'' or ''slow,'' drying. Almond, castor, lard, mineral, oleo, olive, peanut, and sperm oils are *non-drying*.

In temperate climates, coconut, palm, palm-kernel, and kindred types are nearly solid fats.

OKA (*Oxalis crenata*), a plant native to Peru which is worthy of more extensive cultivation in this country—it has already made a place for itself in Europe. Its principal value is in its roots—pyramidal in shape, two to four inches in length, and with smooth, yellowish or reddish skins. When fresh pulled, their flavor is too acid to be generally acceptable, but South-Americans rectify this by placing them in woolen bags and setting in the sun for a few days, the result being a sweet and floury character, suggestive of fine sweet-potatoes. If the drying is continued, they wrinkle and shrivel, acquiring a flavor resembling dried figs, and may be eaten raw. The young leaves and shoots are also consumed as greens or salad, and the acid, fleshy stalks in the same way as rhubarb.

OKA (Cheese). Canadian-made *Port du salut* (which see in the article on CHEESE).

OKRA, or Gumbo, a large, herbaceous plant—from two to eight feet high—cultivated in the southern states and the West Indies, as well as in many other warm parts of the world, for its ridged, mucilaginous pods, which are excellent in soup or stewed as a vegetable. They were formerly dried in large quantities for consumption when fresh okra is unobtainable, by cutting into rings and hanging in the sun on long strings. Their use in that form has decreased in recent years as the canned product (both whole and sliced) is decidedly preferable.

The pods vary greatly in length—they are generally from four to six inches, but they sometimes exceed a foot. They must be cut before their fiber develops—any pod that is too tough to be easily cut with a dull pocket-knife is too old to be worth eating. Those less than three inches in length are commonly preferred.

Okra-pods

Iron and tin cooking utensils are not suitable for cooking okra as the metals are liable to discolor it. Enameled cans should be used for canning.

In Europe, okra-powder is marketed for the thickening of soups, etc., and okra-seed is occasionally roasted for use as a coffee substitute.

OLEO, or Oleo Oil, the oil obtained from animal fat, especially beef fat, by the removal of the tissues and solid fatty acid. It is largely used in the manufacture of oleomargarin.

The word "oleo" is also employed as an abbreviated form of Oleomargarin and as an adjective signifying "oily."

OLEOMARGARIN, or Margarin, or Butterine, an artificial substitute for butter, first devised (in 1870) by the French chemist Mège-Mouriès. He used beef oleo oil, milk, and water in proportions of ten, four, and three, churning together with annatto—the last-named being of course added to secure the characteristic butter color.

Many changes have taken place in oleomargarin processes since Mouriès' time, and to-day it is manufactured in numerous styles and of widely varying ingredients. Beef oleo oil is still (generally) the chief ingredient of oleomargarin proper, but with the addition of neutral lard (see Lard), and vegetable oil (usually cottonseed oil, either exclusively or chiefly), together with ripened pasteurized milk, the importance by quantity of all the ingredients being in the order given. Choice grades contain a percentage of natural butter.

The color may be either white or yellow—the latter either by artificial coloring or from the natural hue of the oil incorporated—oleomargarin being marketed in both forms in order to meet the requirements and prohibitions of legislative acts.

The advantages of oleomargarin are that it is a thoroughly wholesome food with a good deal of the appearance and flavor of butter which can be produced at a lower cost than good butter. For general adult use it answers all the main food purposes of the dairy product, and it is for the entire family a much safer food than poor grades of butter. Incidentally, competition with oleomargarin has greatly improved the general standards of butter manufacture. Those whose memories can reach back to fifty years ago will remember how common was rancid butter. Now, fortunately, it is an article seldom encountered.

It is impossible to briefly summarize a more exact comparison because of the varying ingredients of oleomargarin. As originally made, its analysis, its food value, and its assimilation by the body differed little from that of butter. But another element enters with the inclusion of large percentages of lard and of vegetable oils—though the product is still nutritious and wholesome, there is a decided decrease of vitamin components (see Food Values). This objection may be a minor one in the case of adults, with whom either article is a very small part of a mixed diet, but it becomes important with children whose diet may include a considerable proportion of "bread and butter."

Oleomargarin has had a long, uphill fight to secure general public acceptance. The two prime factors which delayed its general use were, on the one hand, the opposition of farmers and dairymen, and, on the other, the necessity of circumventing the fraudulent substitution of oleomargarin for butter—the former being largely the result of the latter.

The clumsy title "oleomargarin" was not devised, as one might suspect, by the enemies or defamers of artificial butter. The "oleo" is of course self-explanatory. The "margarin" perpetuates an error of French chemists who long held that olein, "margarin," and stearin (as the glyceryl derivatives of oleic, "margaric," and stearic acids) were the essential constituents of animal fats, and olein and "margarin" of the fat of milk (i.e., butter). The so-called "margaric" acid was in reality a mixture of palmitic and stearic acids, and "margarin" of milk has totally disappeared from the language of the subject. Nor was the title "oleomargarine" first applied to artificial animal-fat butter—it had been given fifteen or sixteen years before to a solid substance obtained yet earlier from olive oil. Thus it happened that the *original* "oleomargarine" was a fruit product!

See also Nut-butter.

OLIVE, the fruit of an evergreen tree with abundant foliage of small greenish-grey leaves. It often reaches a great age—there are trees in the districts near Nice and Genoa believed to be more than 2000 years old. The fruit is green until it attains its full size, then gradually becoming yellowish and finally (in most kinds) changing to a dark purplish-brown.

The olive is cultivated in many countries—in the eastern hemisphere, in all countries bordering on the Mediterranean; in the United States, chiefly in California. There are numerous varieties, differing considerably both in the size of the fruit and its oil content—the latter averaging from 10% to 30% of the flesh of the fruit. For the production of olive oil, the essential quality is—as might be surmised—a good percentage of oil. For pickling, the chief desiderata are large size and firm flesh. The special European "oil" varieties of olives are of small or medium size, but modern practise in California is to cultivate those of large size which are also good oil yielders, the big, fine fruit being pickled and the remainder of the crop going to the presses. Some of the fruits attain a diameter of an inch or more and a still greater length—up to 1½ inches—with weights of more than half an ounce each.

The finest imported pickled green olives come from the south of Spain. California and Arizona lead in the marketing of the pickled ripe, or "black," olive. On the Pacific coast, the green olive is passing into oblivion.

The varieties chiefly cultivated in California are the Mission, Manzanillo, Ascolano, and Sevillano.

The several hundred thousand Missions are all descendants of trees planted by the Franciscan Fathers in pioneer days; the Manzanillo and Sevillano are Spanish varieties (the Sevillano furnishes the imported Queen olives of Spain); the Ascolano is an Italian strain. All of them are of deep color except the Ascolano. The Mission and Sevillano are typical olive-shaped; the other two are rounded oval. The Mission ranges from small to large. The Manzanillo and Sevillano are medium to large. The Ascolano is very large, and with especially thick flesh.

The fruits for pickled green olives are gathered when they have attained full size but before they have begun to change to their ripening color. They are assorted according to size and quality, then washed and placed in a solution of soda or potash lye to reduce their bitterness and to soften their skins. Next comes washing with sufficient water to remove the caustic flavor of the solution, and finally the pickling, the process varying with the customs of different localities. Some use brine only, or salt and vinegar mixed—others add fennel and thyme, or coriander, laurel-leaves, etc. The fruit is generally pickled whole, but when it is desired to give it a stronger savor, it is incised to the stone.

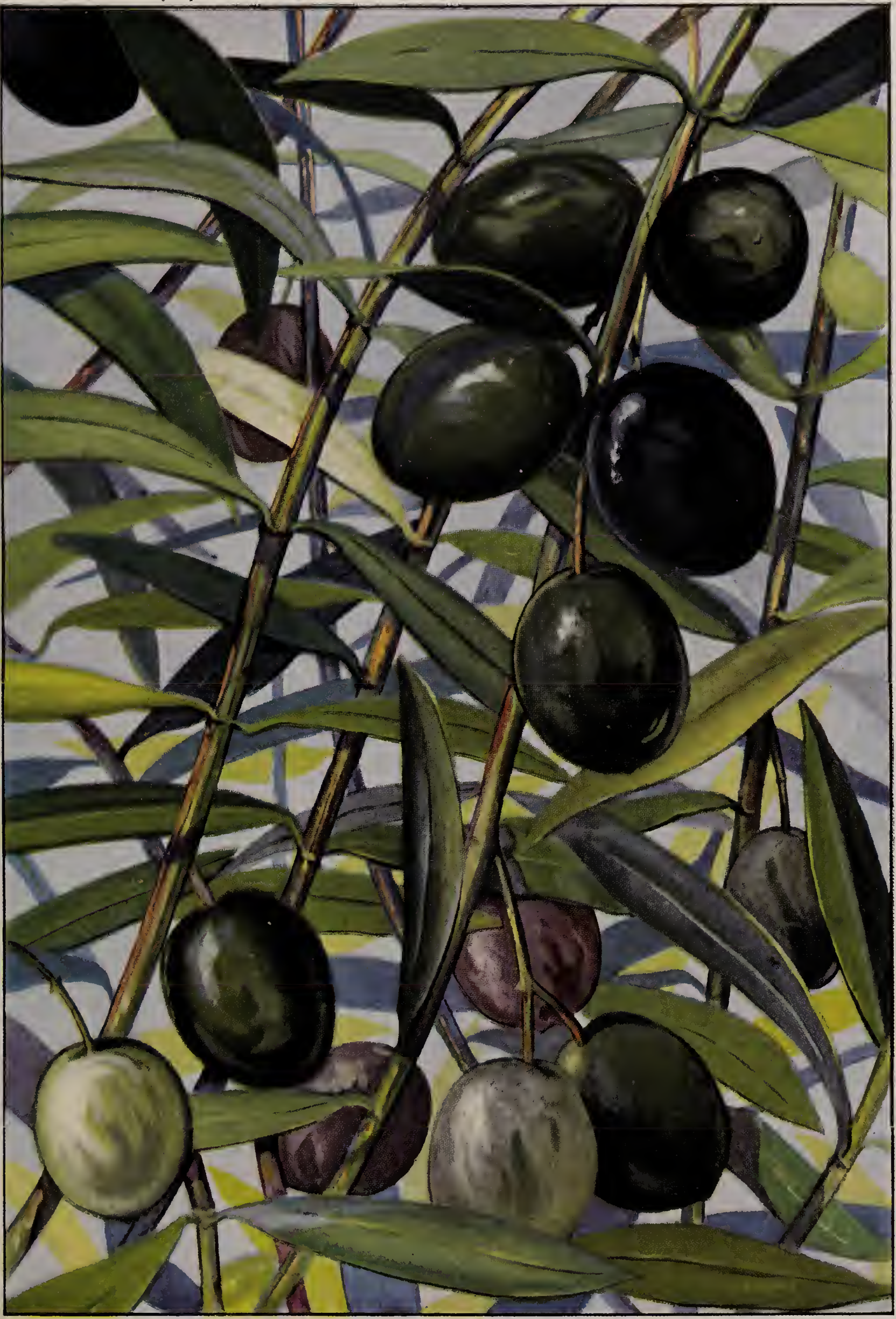
A perfect pickled green olive is yellowish-green, very firm, with pinkish pit and agreeable flavor. It must have all of these points, for each is essential to a fine product. Fruit of lesser quality is generally dark, with meat soft and mushy or woody and tasteless, these defects being caused either by age or imperfect curing.

Pickled or salted ripe, or "black," olives are brown to purplish-black in exterior appearance, and dark in pulp, with a bland flavor due to the oil developed in ripening. They are treated in much the same manner as the green fruit, because prior to pickling they retain the characteristic bitterness.

Ripe olives thus pickled, and thenceforward held in strong brine, will under proper conditions keep for several months, but the most favored method follows the pickling with sterilization in cans. The latter method is preferable, and is the one in general use in California.

Green olives are essentially a relish. Ripe olives constitute a wholesome and very nutritious food. Dry bread, unsweetened biscuits, boiled or baked potatoes, or similar articles, should be eaten with them, as they are too rich for consumption alone.

Olives are not at first taste generally enjoyed by the average person in this country, but appreciation of them is, in most cases, readily acquired and there is a



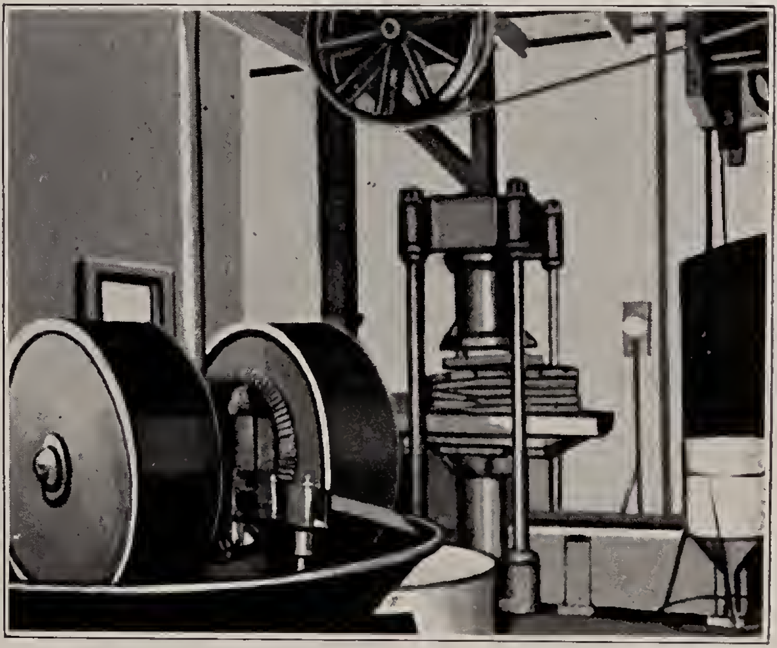
OLIVES

steadily increasing consumption of both imported and domestic brands, both green and ripe—green olives being very popular stuffed or filled with peppers, celery, etc., especially the first-named. All kinds are best served in a small quantity of brine and cracked ice, after being thoroughly chilled in the refrigerator. They should never be rinsed in water.

OLIVE OIL is made from tree-ripened olives. The finest is that from fruit gathered just before it begins to soften, and immediately expressed. The usual method is, however, to permit the fruit to soften, as this gives a larger yield, and to dry it partially, as this results in a quicker flow.

All fruit is, or should be, gathered by hand—or perhaps by careful manipulation of wooden-teeth rakes—never by beating the trees as generally here in former years.

The olives are first crushed and their liquid is then extracted by pressing the pulp or by centrifugal separators. The first "crude olive oil" is obtained from this liquid by settling and skimming, or by "washing" with a continuous flow of clear water. Refining produces the olive oil of the salad. The initial run is the prized "virgin oil." The last yields are used industrially—in soap manufacture, etc. A hundred pounds of fruit will yield an average of thirteen to fifteen pounds of edible oil.



Small olive crusher, press, and "settler"

The merit of the finished product depends upon many different points—the quality of the fruit, its condition when picked (for neither unripe nor over-ripe nor damaged fruit will give the finer grades), and the methods of refining.

The best test is its color—that of a golden or straw-yellow tint is best. If it is of greenish hue, it is either an inferior grade or it has not been well refined. When fresh and of good quality, it is of sweetish, nutty flavor.

Italian olive oil is more fruity in flavor than the French, and has a more decided olive taste. Some people enjoy this, but the majority prefer the French, as it is more neutral, softer, and more delicate. There is an increasing demand for the finer grades of California olive oil, which in flavor and purity alike have attained front rank. There is also a considerable importation of the Spanish and Greek products.

Olive oil should not be exposed to extremes of light or temperature. Light will fade its color, heat will make it rancid, and cold will cause it to congeal and separate. Cold does not however injure the quality. It is also very sensitive to foreign odors and flavors, and manufacturers are obliged to exercise the greatest care in handling and storing it.

OLLA PODRIDA, one of the national dishes of Spain—a rich soup-stew of meat, sausages, chick-peas, cabbage, etc. Because of the varied character of the mixture, its name is often used to describe any jumble of words or ideas.

Brown Bros.

A fine field of onions

ONION, a common field and garden vegetable, native to western Asia, which has been an article of diet in many countries for a long roll of centuries, and is to-day grown in every part of the world—in particularly large quantities in Germany, Spain, parts of Africa, and parts of the United States—especially in California, Texas, New York, and Ohio.

The principal types are the (chiefly or entirely) above-ground, single bulb of the seed-bearing onion; the separable, (partly, and sometimes wholly) underground bulb of the seedless "multiplier," or "potato," onion; and the small stem-bulb of the seedless "tree," or Egyptian, onion. The great bulk of the crop is of the first class—the single bulb of the seed-onion, raised directly from the seed. It is best for ordinary use. The multiplier onion is good in flavor, but the larger specimens are poor keepers. The stem-bulbs of the "tree" onion make excellent pickles but are not otherwise especially desirable, and the larger onions which follow their planting are deficient in flavor and subject to early decay.

Among the principal varieties of the common, or seed, onion are the white (or silver-skinned), yellow, and red—all with various names according to their size, shape, season, and flavor. The different colors are, alone, no gauge of quality—there are all grades in each color, and the choice is almost entirely one of individual preference. The demand varies in different localities, and changes from time to time—one part of the country will for a long time give the preference to the yellow, then popularity will veer to the white.

The strong smell and flavor of the onion is due to a pungent volatile oil, rich in sulphur. When grown in warm places, it is generally milder and sweeter than the more northern product. Those of moderate size contain about 91% of water.

Importations of Bermuda onions, formerly large in amount, have greatly declined as a result of the development of onion growing in the South. There persists, however, a steady and considerable importation of the big, mild, Spanish onion.

Many people make a mistake in storing onions. They need to be kept dry instead of damp, and consequently an airy place is the best for them—though, for the same reason, on foggy days all windows should be kept closed. Open crates of lath, such as are used to ship potatoes, make good receptacles, as they afford ventilation and keep the bulbs from lying in a deep mass. When many are piled together, they are liable to sweat, grow, and rot. A temperature of 34° to 40° Fahr. is best. Curing in the sun for several days should precede placing in the cellar.

Care should be taken to avoid bruising, and damaged specimens should be promptly removed. It is well to leave the tops on, as they tend to protect against bruising and the consequent liability to rot, and it is a wise precaution to turn the stock over occasionally. When removing the tops, avoid cutting too close to the bulbs.

The uses of onions are many and diversified. In this country, the fresh vegetable is cooked in every conceivable way, and there is a large sale of small onions pickled in numerous styles. In Europe, the laboring classes eat onions raw as we eat apples.

A good idea for the housewife is to keep a knife with a different-colored handle for peeling and cutting onions. Then there is no danger of its being used for, and carrying the flavor into, other articles. The color proves an effective deterrent!

Closely allied plants are CHIVES, GARLIC, LEEK, SHALLOT, and WELSH ONION, treated under their own heads. See also SCALLION.

Onion powder and *Onion essence* are self-descriptive. They are convenient condiments.

Opossum

OPOSSUM, a small marsupial animal found in the southern states—the Common, or Virginia, being about the size of a cat, with greyish fur and black ears and feet. It has recently been popularized as a "new" dish among the white race in the North, first scalded and scraped, and then generally roasted or baked and served with sweet-potatoes (roasted around it) and corn bread. It tastes like young pig.

ORACH, or French Spinach, or Mountain-spinach, or Sea-purslane, a pot-herb whose young leaves make good greens if rapidly grown. It is popular in France and also, though to a smaller degree, in England. It has been cultivated here in a few places. There are three chief styles—the "White," with pale green leaves; the Red, with dark red leaves and stems (the red color disappearing though in cooking); and the Green. Cultivation is generally of White varieties. If permitted to mature, the plant reaches five to six feet in height.

ORANGE. The orange of general consumption, the *Sweet Orange,* was apparently unknown to Europe prior to the fifteenth century but its fame is to-day universal and it is cultivated in every part of the world where the climate is subtropical or hotter. Its original home was, probably, in southern China and Burma. The tree is an evergreen of small to moderate height with white flowers of heavy, sweet fragrance and considerable beauty (see the color-page facing 360). The late varieties, as the Valencia, bear foliage, flowers, and fruit simultaneously, for their fruits require twelve months or more to become fully ripe. Mature California trees of good growth in well-managed groves generally give from four hundred to a thousand fruits annually—many of those in favorable locations greatly exceeding even the maximum figure.

California oranges are in the market all the year round, the winter and early spring supplies being of Navels, and the summer and early fall of the Valencia Late. The Florida season extends from late October to June. The Louisiana crop commences arriving in the market a little earlier, and the Arizona navels a little later.

There is an increasing demand for fancy fruits of *Citrus nobilis,* the "tangerine" species—strongly aromatic, somewhat flattened in shape, with loose, easily removable, rather dark skins, and mild, sweet pulp. The most popular of the numerous varieties are the small to medium Tangerine, the medium to large Mandarin, the medium-sized seedless or nearly seedless Satsuma, and the King of Siam, or ''King''—the last-named generally of fair to large size and of very rough skin (see the second color-page facing 360). The fruits imported from Japan are chiefly of a type a little larger than the Mandarin.

The title of ''tangerine'' represents horticulturally only a special development of the Mandarin variety, but it has in layman parlance practically engulfed all Mandarin fruits, especially those of small to medium size.

The fame of the California product has been much enhanced by the fine Navel, or seedless, oranges marketed in increasing quantities each year—handsome in appearance, good shippers, and good keepers. Contrary to general belief, navels are *not* the result of scientific development by horticulturists. They constitute a natural special variety.

The real commencement of their rise to their present commercial importance is found in two young trees—propagated from a shipment that had reached Washington (D. C.) from Bahia, Brazil—that were presented in 1873 to a Mrs. Luther C. Tibbets, then about to join the infant colony at Riverside, California. It was only a few years later that the excellence of their fruits created a great stir among California growers, and for a time Mrs. Tibbets secured a dollar for every grafting-bud she sold.

In 1880, the California navel crop was just one whole box! Within the few decades that have since elapsed, the industry has grown with such enormous strides that the annual harvest is now valued at many millions of dollars — and is steadily increasing as new groves are started and old ones extended.

One of Mrs. Tibbets' original navels still lives and bears in Riverside—carefully tended and highly prized as is its due.

The Valencia Late is a Spanish variety. It is not as choice as the navel, but it offers the special advantage that it will remain on the trees for a full six months

Brown Bros.

Sulphuring orange-trees to kill parasite life after ripening, unimpaired in appearance or quality, thus supplying the market during the summer months after the navel crop has been exhausted.

California has passed Florida in the total of its crop but the comparative merits of the fruits themselves remain a matter of individual opinion. Some people give their preference to the California fruit; others maintain that the finest Florida orange—the Indian River, thin of skin and heavy with richly flavored, juicy pulp—is still unexcelled despite its seeds. The Florida orange is typically sweeter and less "sprightly" than the California.

The best Louisiana oranges are upheld by many as of equal rank with the Floridas—they also are thin-skinned, sweet, and juicy, and altogether delicious.

Oranges are gathered with the greatest of care, for the slightest abrasion of their fresh, growing skins—by the finger-nail, or otherwise—is almost sure to mean the destruction of the fruit by mold.

After gathering, they are allowed to rest for a day or so, sometimes several days, so that their skins may shrink and become less sensitive to abrasion. Then comes their cleansing, or "polishing," by brushing or washing machines (according to their condition)—to be followed by hand sorting into fancy, choice, standard, etc.—and, mechanically, by size, from those which run 360 to a box, to big specimens of which only forty-eight are required. The "fancy" fruits are perfect in form and style and with unmarred skins of the typical orange color.

Finally comes the wrapping of the finer fruits in paper, and packing in boxes.

Ripe oranges should be stored in a cool, dry place with a temperature never much above 40° Fahr. and never falling to the freezing point. If subjected to careful sorting beforehand and properly crated, they will at that temperature generally

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Picking oranges, California

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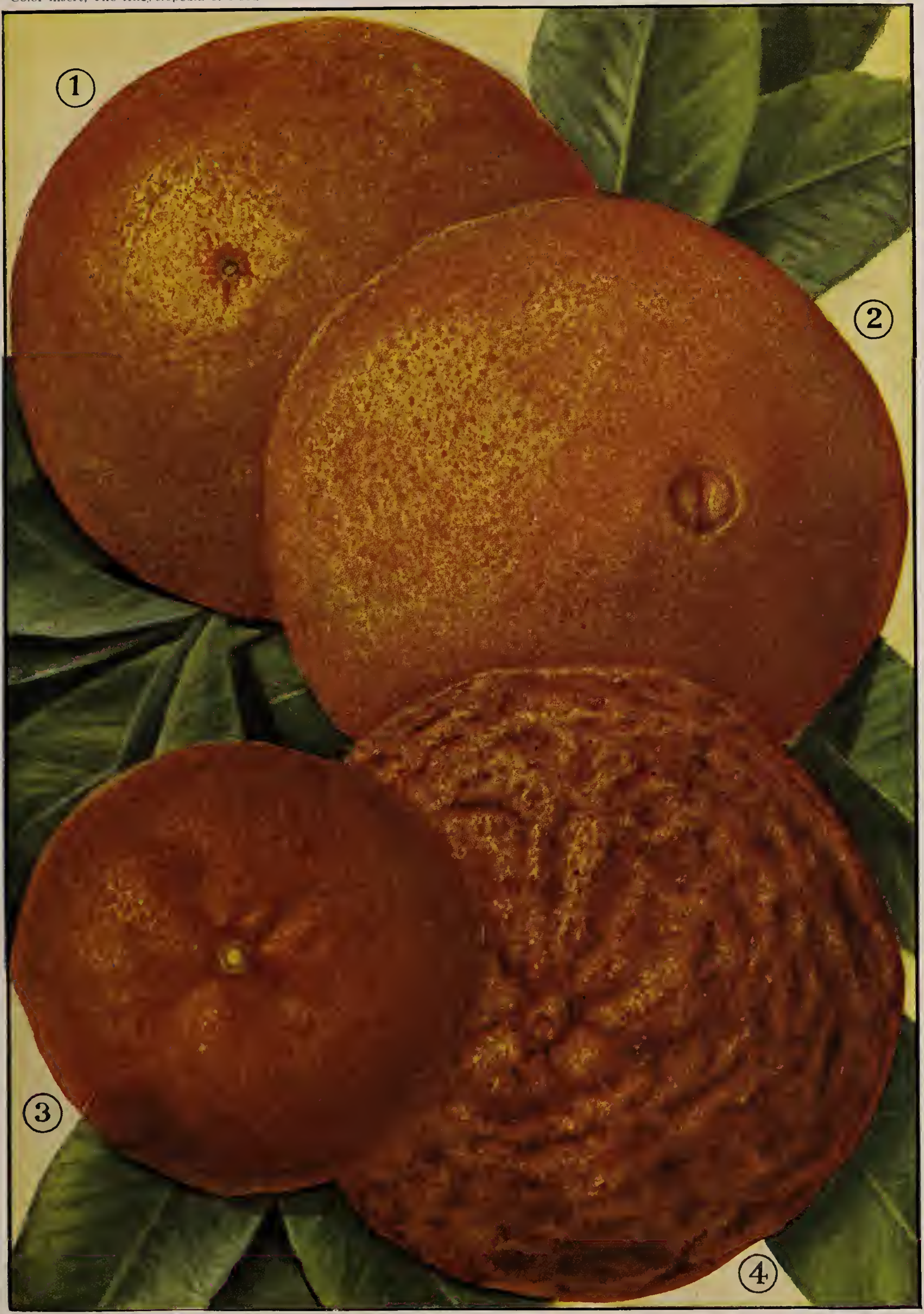
ORANGES—Flowers and fruit



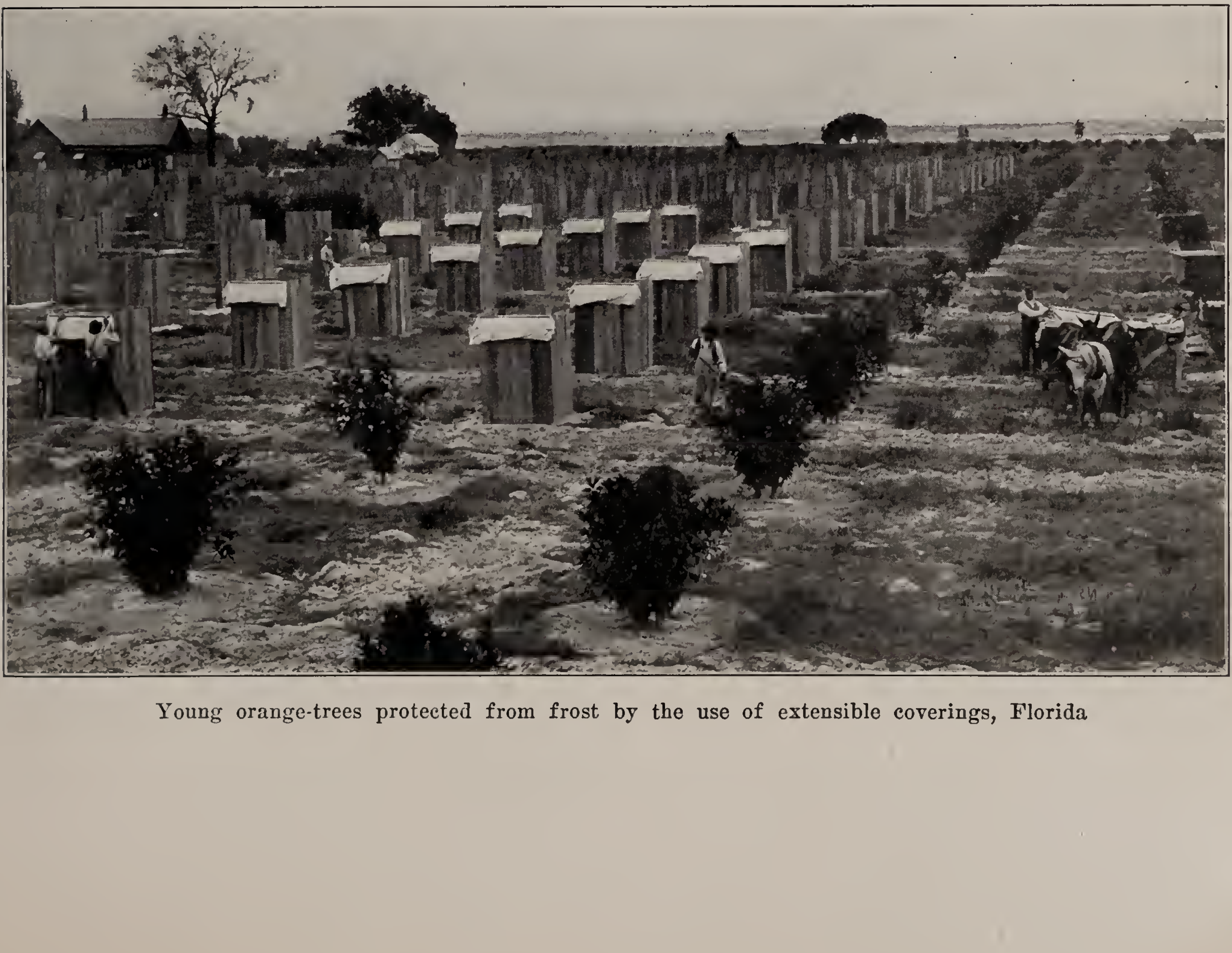
(1) Florida ORANGES (2) Navel
(3) Tangerine (4) King

remain sound for from eight to twelve weeks. For a moderate length of time, they will stand warmth up to 80° or 85° Fahr., but anything beyond that will dry and shrivel them. In warm weather, a plentiful supply of fresh air is essential to their proper keeping, whether in transportation or in store or home. Wrapping in soft paper and packing in sawdust is recommended. The thin-skinned varieties are especially liable to absorb odors, so proximity to strong-smelling articles should be avoided.

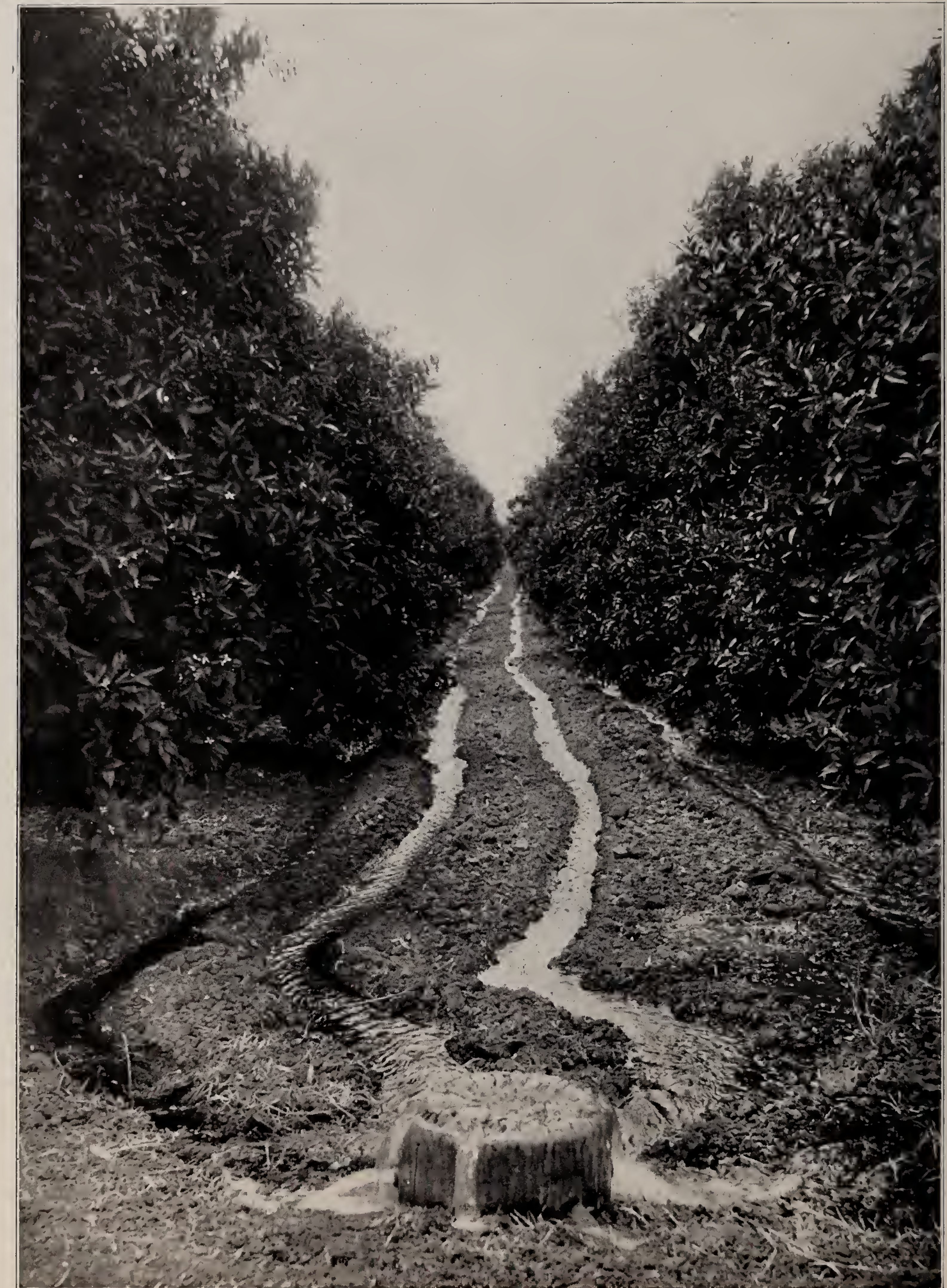
Oranges are probably the most wholesome and useful of all subacid fruits. Their free and regular consumption is beneficial to nearly everyone, and with many persons they are a real specific for ill health based on digestive disorders. Their antiscorbutic vitamin value is widely recognized (see Food Values) and they share with other fruits (as grapefruits and lemons) the advantage that the human system oxidizes the greater part of their citric acid into a base—i.e., instead of remaining an acid it becomes alkaline—and reduces, instead of increasing, general acidity. They differ from lemons chiefly in containing less citric acid and more sugar.

A point to be remembered by the consumer is that many a choice fruit is concealed in a poor-looking or mottled skin! Weight for size, ripeness, and soundness, are the principal points for consideration. All of these may be found equally in those of "fancy" and those of less pleasing appearance. For ordinary family purposes it is not necessary to confine oneself to the more expensive fruits, classed as "fancy" because of their handsome exteriors.

A small percentage of oranges retain green skins even when fully ripe and sweet, and Satsumas reach both ripeness and their finest flavor some weeks before turning yellow—their flavor is inferior if full color is awaited before plucking. It is permissible to give such fruits the typical orange color by "sweating." The process applied



Young orange-trees protected from frost by the use of extensible coverings, Florida



Gilliams Service

Irrigating an orange grove, California

to an *unripe* green orange signifies, however, a particularly pernicious attempt at fraud, for the sweating changes only the skin, and the unripe fruit thus disguised is not only an unpleasantly sour fruit which may forever kill all desire for oranges in its consumer, but also one which may cause serious digestive disturbances if eaten by a child.

Seville Orange, or Bigarade Orange, or Sour Orange. The foregoing article deals with the ordinary sweet orange, the one with which the general public is almost exclusively familiar. The first orange known to civilization was, however, the Seville, or Sour, the French *bigarade,* which was brought into Spain by the Moors early in the eighth century, nearly seven hundred years before the sweet orange made its appearance in Europe.

The Seville tree is smaller than that bearing the ordinary orange, more inclined to be spiny, and with leaves more nearly elliptical in shape. The oil cells of the fruit are concave, and both the pulp and rind are heavier and coarser.

Unless very ripe and considerably sweetened, the Seville is not to the average palate a pleasing fruit to be eaten raw—its juice is too acid and generally too bitter—but it is grown very largely throughout southern Europe, and to some extent here, for use preserved and in other ways.

In the preserved form it is best known as MARMALADE (which see). Quantities of the green fruit are also otherwise preserved and candied, and the peels, by distillation, furnish an essential oil which is utilized in flavoring sirups, by perfumers, etc. and medicinally as a stomachic.

The Spaniards brought the Seville to Florida, and there it found a soil and climate so well suited to its requirements that wild groves were soon to be found all over the state—to such an extent, indeed, that many authorities held for a long time that the tree must be native to the country. The wild groves have, however, almost entirely disappeared—many of them were killed by the severe freezing spells of a few decades ago, and a majority of the remainder have been budded to the ordinary sweet orange.

The Sour-sweet is merely a local variety or adaptation of the Seville.

ORANGEADE, an orange beverage similar to lemonade.

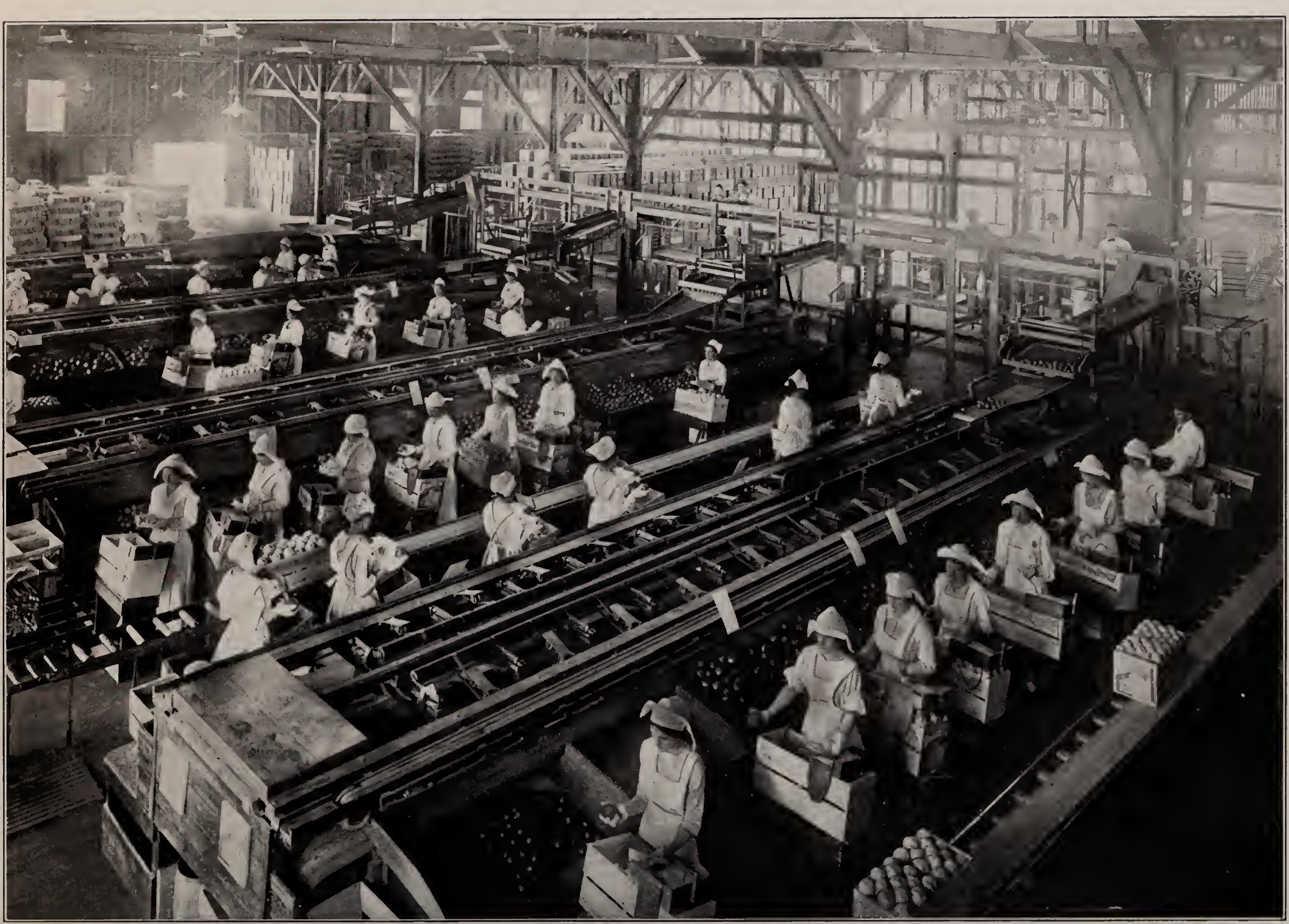
ORANGEAT, a term applied both to candied orange peel and to orangeade.

ORANGE-BLOSSOMS. The chief use of orange-blossoms is in the manufacture of NEROLI (which see). They are also employed in the preparation of many southern puddings, ices, and other desserts (being crushed to bring out the flavor as strongly as possible) and are candied whole in the same way as violets.

The custom which adorns brides with orange-blossoms is derived from the Saracens, among whom they were regarded as emblematic of happiness and prosperity.

In South America the dried blossoms are made into a gently stimulating and very fragrant beverage.

ORANGE EXTRACT. See FLAVORING EXTRACTS. The orange oil used is extracted in the same manner as LEMON OIL (which see), nearly all the trade supply coming from Sicily.



Gilliams Service

Mechanical grading and hand packing of oranges, California

ORANGE-FLOWER OIL, ORANGE-FLOWER WATER. See NEROLI.

ORANGE JUICE. All the remarks in the article on LEMON JUICE apply equally to orange juice, excepting (as noted in the article on the ORANGE) that the citric acid content is lower and that the sugar content is higher—the latter especially a fact to be remembered as either an advantage or a disadvantage according to circumstances. The laxative properties of the juice are over-rated. It is a common supposition that it is the *juice* of the orange which contains the laxative value when the fruit is taken early in the morning, and hence many people express it into a glass to drink it—and are disappointed in its effects. Orange juice is a nutritious, refreshing, cooling beverage, but it is under some conditions inclined to be constipating rather than laxative. It is the whole flesh of the fruit which should be eaten for the latter purpose—in order to get the combination of the sugar and other components of the juice with the crude fibre, etc., of its containing matter.

ORANGE MARMALADE. See the general article on MARMALADE.

ORGEAT, a form of ALMOND SIRUP (which see).

ORTOLAN, a European bird about the size of a lark, distinguished by its black wings and greenish-grey head. When fattened after netting, it is considered a great delicacy. The ''ortolans'' sold here are generally various kinds of small ''reed-birds.''

OTAHEITE APPLE, a Polynesian fruit borne by a tall, stately tree (*Spondias cytherea*) which thrives in southern Florida. It is eaten both raw and in jams, etc. It is commonly of orange color, two to three inches long and inclined to egg-shape, with a thin, tough skin which generally carries an odor of turpentine. The yellow flesh enclosed is, nevertheless, (in good specimens) pleasingly aromatic, subacid, and juicy, somewhat resembling the pineapple in both aroma and flavor. Fruits of poor type are disagreeably resinous.

OYSTER. One of the most democratic of food luxuries is the oyster—you find it in high favor in the most expensive establishments yet it is equally abundant in ''popular price'' restaurants, in lunch-rooms, and in the cheapest of eating-stalls. In stores, it is sold both in and out of the shell, fresh and canned, and it is consumed in every conceivable way! It is of historical interest also, for it has been enjoyed as food as far back as history takes us and has been an object of special culture for two thousand years.

The first stage of the young oyster as a complete, separate identity is as a minute larva, about 1/150 of an inch in length, the ''spat,'' or ''fry,'' swimming near the surface of the brackish water of a bay, or river-mouth, or estuary, on the bed of which its parents are still securely moored. From its larval form, rapidly changing and developing, and adding a shell covering, it is soon—within from ten to eighteen days—metamorphosed into a tiny oyster, 1/75 of an inch or so in length, clinging to a shell, or a rock, or any other convenient object on the water-bottom—perhaps in the parental bed, but frequently in some other place miles away, wafted thither by tides and currents. Its brief baby traveling days are over. Thenceforward, unless disturbed by man or other agencies beyond its control, it grows, reproduces its kind, and dies on its adopted site.

The eating of oysters raw is as correct from a dietetic standpoint as from that of the epicure. The raw oyster is very easily digested; cooking toughens it and gives the stomach more work.

Too much, though, should not be expected in nutriment from a plate of oysters, for their water content is large. Nearly two and a half dozen of average size are required to equal the food value of two eggs.

The oysters of our Atlantic and Gulf coasts are all of the one species, *Ostrea virginica,* but they are variously known as Blue Points, Buzzard Bays, Cape Cods, Rockaways, Cotuits, Lynnhavens, Saddle Rocks, etc.

These titles have in many parts lost much of their first significance by trade misuse. ''Blue Point,'' for example, is often, though incorrectly, applied to all small oysters, especially if somewhat rounded and with smooth shells, irrespective of their geographical source; ''Rockaway,'' ''Saddle Rock,'' ''Cotuit,'' etc., are similarly employed for larger sizes; and ''Lynnhavens'' for the biggest offerings. As a matter of fact, there are both small and large oysters of all varieties, the difference in size being principally that of age.

On the Pacific Coast the supply is chiefly of the native oyster *Ostrea lurida* —generally much smaller than the Eastern—supplemented by those grown from baby, or ''seed,'' oysters shipped across the continent from Eastern beds.

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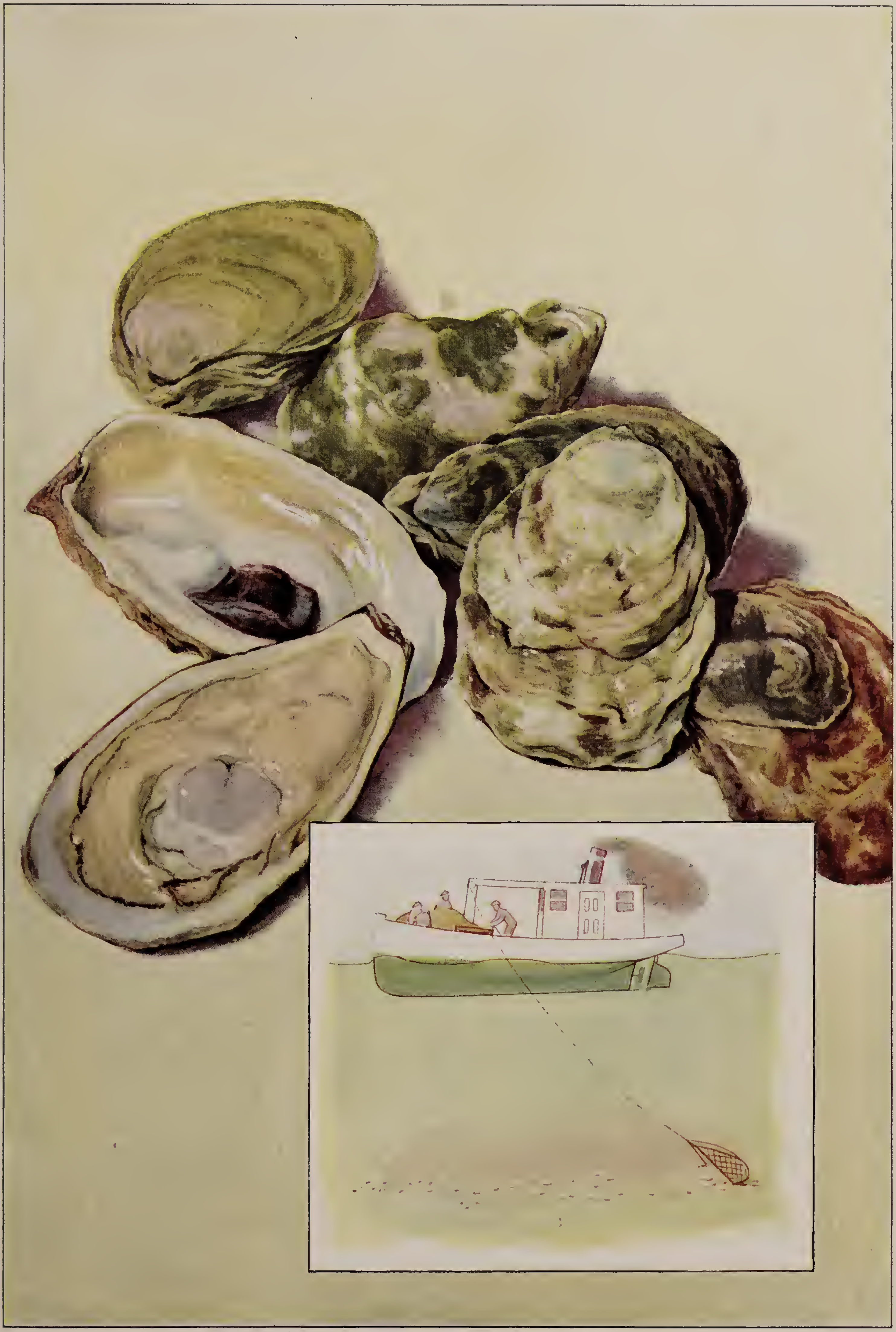
A mountain of ''seed'' oysters ready for planting, Hampton, Va.

A small quantity of European oysters is imported every year—particularly of the French Marennes, which has a greenish color and a coppery taste from feeding on green seaweed—but it is intended only for limited consumption in a few cosmopolitan establishments. The general trend is the other way around, for every year sees large exports of American oysters, which are almost universally conceded to be the finest in the world.

The same color and flavor that mark the Marennes are sometimes seen and tasted in our oysters—particularly in the green-gilled Chesapeake—and are produced in a similar manner. Such oysters, if in other respects desirable, are thoroughly wholesome.

Within the last few generations the annual destruction and consumption of oysters have increased so enormously that even those countries where the natural crop is largest have been compelled to resort to at least some measure of special growing to keep pace with it.

England confines itself generally to aiding natural beds with an additional supply of ''cultch''—usually shells—on which the spat can fasten themselves. France, Hol-



OYSTERS (and method of oyster-dredging)

land, Japan, and some other countries practise intensive cultivation. Our own methods are about midway between.

Stimulating all projects for the increase of the supply is the knowledge that under natural conditions only about one larva in a million becomes an oyster of marketable size—and that of the millions of eggs produced by our common eastern species only a small percentage become larvæ!

In France and Holland the spat are commonly caught on lime-coated tiles ranged in rows along the shore near the low-water mark. Another French method, widely practised, is to catch them in "hives"—large, open, plank cases containing lime-coated shells. A few months—in some cases a year or so—later, the oysters (now one-half inch to an inch in diameter) are carefully removed from the tiles or shells and set out on the growing grounds—being perhaps shifted into fresh "parks" once or twice a year until of the generally-desired third-year size.

In Japan the spat are caught on bamboo-stalks—the branches and leaves left on—struck into the soft ground at low tide, hedge-style in rows, or in stacks (see page 370). As the rise and fall of the tide over them is generally from ten to fifteen feet, the Japanese oyster-farm is alternately exposed and submerged twice in every twenty-four hours, which greatly facilitates the inspection, transferring, and harvesting of its crop.

Loading an oyster steamboat

In this country the usual practise is to furnish oyster-shells for the spat to settle on—then either leaving them to their own fate and devices, or later taking them up for use as "seed - oysters" to be placed in some new growing ground.

Seed-oysters range from very small to (comparatively) considerable size, the average being a diameter of one-quarter to one-half inch. They are usually "planted" with the shells, etc., to which they are adhering.

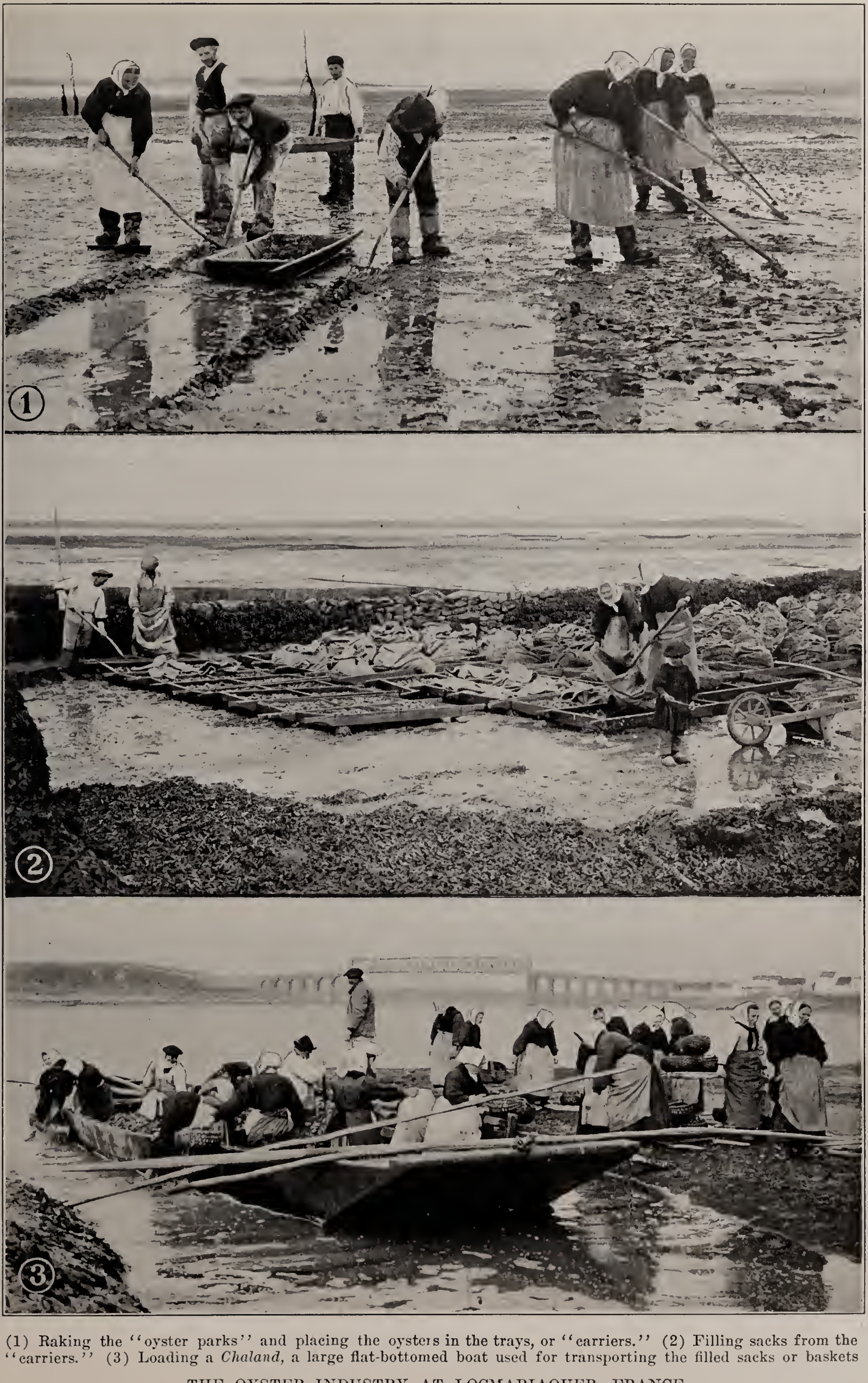
Because of the large consumption of raw oysters, it is very important that their bed-waters be guarded against pollution by sewage or otherwise.

The period intervening between setting and gathering is subject to variations in accordance with the size of the seed when planted, its rate of growth, the size desired, and the locality. In the North, four inches of shell length may represent an age of four years—but in warm waters of favorable location the same size may be attained in two.

The season for marketing opens with September. The oysters are taken by means of dredges and tongs and are prepared for the market by ''culling,'' or sorting by sizes, the dirt and attached shells being removed during the process. In some cases the cleaning is assisted by dumping them on the sand at low tide, removing them at the next low tide. They may also be ''floated'' in special shallow barges so constructed that they are continually covered with freely circulating, brackish water. This serves sometimes for temporary storage or may be designed to rid their intestinal tracts of dirt or sand or suspected contamination of any kind. It does not contain the element of fraud which characterized the now obsolescent process of ''fattening,'' or ''plumping,'' oysters by floating them in water less salty than that in which they had been growing—which process does indeed make them appear fuller and plumper, but at the expense of their quality—undesirably increasing their water content and dissipating much of their flavor.

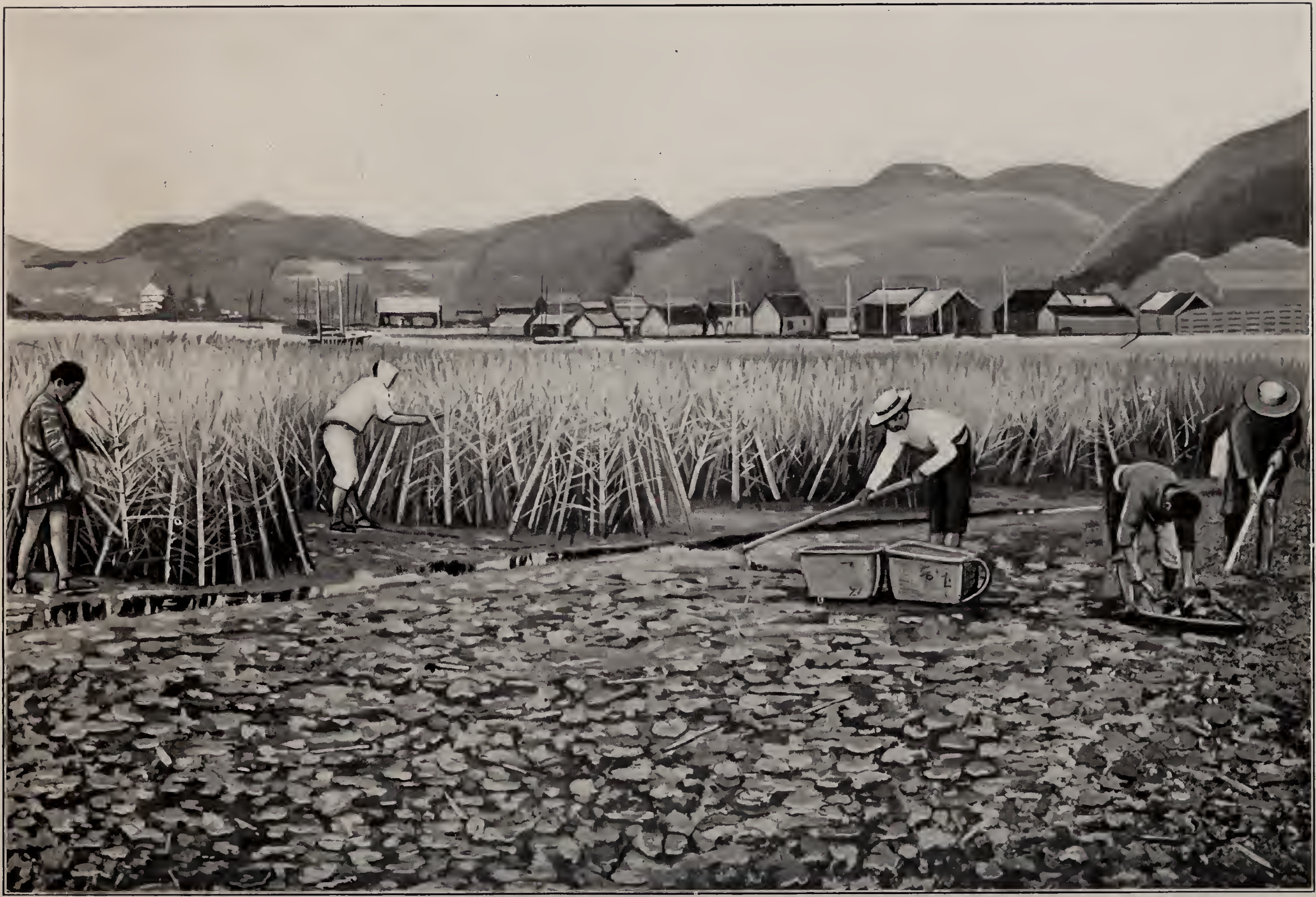
Turtle Rock, Newport River, showing a section of the tonging area
(From a photograph taken at very low tide)

The three chief sizes recognized in the trade are ''half-shells,'' the smallest, usually preferred for eating raw; ''culls,'' of medium size, for consumption raw, for stewing, etc.; and ''box,'' the largest, generally for frying. The true oyster lover, however, rebels at the thought of always consigning the largest to the frying-pan—he takes delight in having them served instead ''on the half-shell,'' for age makes no difference in the tenderness of the oyster. Deep-rooted custom is responsible for its being consumed while still young and comparatively small, but if permitted to grow older, and very much larger, its flesh is just as choice. The maximum size attainable is probably a little more than ten inches.



(1) Raking the "oyster parks" and placing the oysters in the trays, or "carriers." (2) Filling sacks from the "carriers." (3) Loading a *Chaland*, a large flat-bottomed boat used for transporting the filled sacks or baskets

THE OYSTER INDUSTRY AT LOCMARIAQUER, FRANCE



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A Japanese oyster-farm, the bamboo branches thrust into the soft bottom at low tide to catch the spat

By tradition, oysters are tabooed during the months of May, June, July, and August. Applied nationally, the rule fails in its purpose of guarding against the consumption of spawning oysters. The oyster is not a desirable article of diet when spawning, but as spawning time differs with localities, no elimination of certain fixed, invariable months can ensure protection against use in that condition. Boycotting the oyster from May to August covers the spawning of New England and New York oysters during normal seasons, but not those of Chesapeake Bay, the world's greatest oyster source. The rule should be changeable according to circumstances or it should be thrown into the discard—the same care that is even now necessarily exercised in many places during eight months being extended to cover the remaining four. In some southern waters, spawning may, indeed, occur at any time of the year.

The rule is, however, a tradition of great and venerable age! It was first, we believe, put on record in 1599, by a certain Dr. Butler, the vicar of an English country parish—but he can hardly be considered an authority of sufficient weight to bind the human race for all time to come! The custom has been endorsed with some reservations by recent European investigation, because of a disease apparently peculiar to that hemisphere to which oysters cultivated there are subject during the summer months, but the symptoms noted have not been found in this country to any appreciable extent and to little, if any, greater degree in summer than at other seasons. In some parts of the United States, oysters have always been eaten as freely in summer as in winter without any bad effects being noted.

A valuable peculiarity of oysters is the ease with which their lives can be sustained for a long time after being removed from their native element. Placed in a cool, damp place, with the deep shell down and occasionally sprinkled with brackish water, they may be held alive and in good condition for weeks. Any approach to freezing must, of course, be avoided.

When removed from the shell, or "shucked," the oyster may still be kept in edible condition for several days, but it is then necessary to remove its liquor—for, although this is the medium by which existence is sustained while in the shell, it has been found to have the opposite effect after shucking. Shucked oysters which are to be transported any considerable distance, are carefully washed, frequently in five or six waters, until no particle of any substance but the bivalve itself remains. Thus prepared, packed in air-tight receptacles and kept cold, they may be held eight to ten days without seriously injuring their flavor or otherwise affecting them as an article of food.

The canning of oysters has developed into an important industry. The product is widely known as "cove oysters" because those first put up were the small oysters of the coves of the west bank of Chesapeake Bay, south of Baltimore.

In China there is a heavy trade in sun-dried cooked oysters.

The color-page of Oysters faces 366.

OYSTER-CRABS. See reference in the article on the Crab.

OYSTER-PLANT, or Vegetable Oyster, or Salsify (*Tragopogon porrifolius*), a plant reaching two to four feet in height at maturity, native to southern Europe and now generally cultivated in this country—chiefly for its root, which attains a length of about twelve inches and a top diameter of about two—tapering in shape, with yellowish-grey skin and white flesh containing a large proportion of milky-white juice.

The flavor of the cooked root resembles that of the oyster—hence the popular title of the plant. It is prepared in various ways—washed (not scraped), then boiled until tender, peeled, and served like asparagus; or scraped and placed in a mild vinegar solution to prevent the flesh turning black, then half-boiled and grated fine, made into small, flat balls, dipped in batter, and fried like oysters; or stewed like carrots, etc.

Roots stored for winter use should be kept cool and moist, or they will shrivel and become tough. They may, when convenient, be left in the ground and dug as needed, for freezing does them no harm.

If the root is not dug for use in the winter, the young flower-stalks may be cut in the spring following to be dressed and served like asparagus, which they resemble in flavor. The white part of the stalk and the leafy heart of the young top leaves, if well blanched, make an excellent salad.

In England the plant is colloquially known as "John-go-to-bed-at-noon" because its light purple or purplish-red flowers close in the middle of the day.

Black Oyster-plant, or "Black Salsify" (*Scorzonera hispanica*), a smaller plant, has a root similar in flesh flavor, size, and uses, but with a black skin. Many people consider it superior. It is, however, seldom marketed because it is more difficult to raise. Above ground, black oyster-plant is distinguished by its broader leaves and yellow flowers. Its young leaves also are very good for salads.

The Common and Black oyster-plants are shown on the color-page opposite.

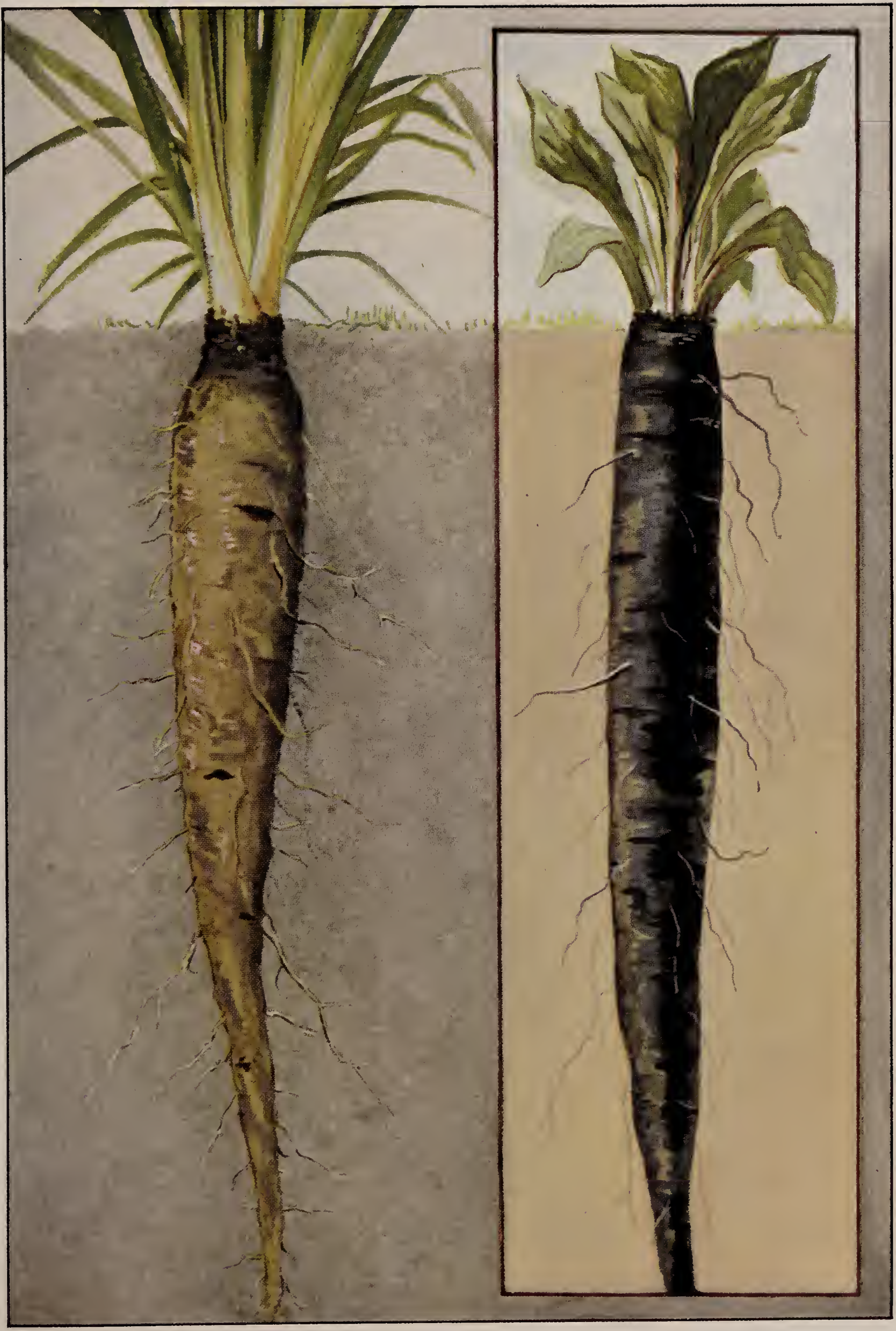
Spanish Oyster-plant, or "Spanish Salsify," or "Golden Thistle" (*Scolymus hispanicus*), is a third vegetable of the same general type. Its root resembles that of the first-described oyster-plant, except that it is of a still lighter color. Its flavor is not so highly developed, but it is pleasing if properly cooked—suggesting a blend of oyster-plant and parsnip—and it has the advantage of greater size and productiveness. Its prickly leaves render it, though, a plant which requires circumspect handling.

PADDLE-FISH, or "Spoonbill Cat," also known locally as "spade-fish," a large, smooth-skinned, scaleless, fresh-water fish of firm, sturgeon-like flesh and greenish-black eggs which make excellent "caviar." It frequents the lowland streams and bayous of the Mississippi and Ohio and has been known to exceed six feet in length and a weight of 150 pounds.

PAKCHOI (*Brassica chinensis*), a Chinese "cabbage" grown in some American gardens. The average plant consists of a few loosely erect, tender, broad leaves with thick white stems. It sometimes develops edible tuberous roots.

Tuberous-rooted pakchoi (*B. napiformis*), a closely related species, is cultivated especially for its roots, which resemble white, spindle-shaped turnips in both appearance and flavor.

PALM-OIL, or Dendé Oil, made from the fibrous flesh of the yellow-red to brownish, date-like fruit of the African and South-American oil-palm (*Elæis gui-*



SALSIFY: "Oyster-plant"

SCORZONERA: "Black Salsify"

neensis, E. melanococca), has in the past been employed chiefly for soap-making, etc., because of the tendency of the locally extracted oil to become rancid, but recent developments in the handling of part of the crop have resulted in a large quantity being utilized in Europe in the manufacture of nut-butter and for other food purposes. When fresh, it is generally orange-yellow and of pleasing odor, and in its home regions is important as edible oil. A simple boiling produces a yellow fat much resembling butter in appearance and distinctly agreeable in flavor.

Palm-kernel, or Palm-nut, Oil is obtained by expression or chemical extraction from the kernels of the same fruit. It is chiefly employed in soap-making but it also is an excellent edible oil.

PALM-SUGAR, or Jaggery, a product akin to our maple-sugar, made from the sap of various tropical palms—especially the wild or cultivated jaggery-palm, or "wild date" (*Phœnix sylvestris*), the coconut, the gomuti (*Arenga saccharifera*), and the palmyra (*Borassus flabellifer*)—and largely consumed by native populations in India, the Nile Valley, and elsewhere. The general method of sap collection is to make a triangular slit in the trunk below the crown, the sap then flowing through a piece of bamboo into an earthenware pot, to be later boiled down and dried in thin sheets in the sun.

PALM-TREE CABBAGE, or Borecole, a handsome variety of kale, six feet or more in height, with a straight, strong, leafless stem supporting a top cluster of leaves, three or four inches in width and two to three feet in length, very dark green, almost black, finely crimped and with rolled-under edges. It is grown in France chiefly as an ornamental plant, but Italians raise it for the table.

PANCAKE. The pancake is probably the oldest form of bread. Ancient ceremonies connected with it are still practised in some places, although (generally speaking) their first significance long ago passed into oblivion. The most widely observed is the custom of eating them on Shrove Tuesday. In France, its observance often develops into a veritable pancake feast.

English, American, and French pancakes all have distinctive characteristics.

The old-fashioned English type is the lightest of all, the batter being mixed with ale and allowed to rise. This method also makes it thicker than the American. It is properly served flat (as also is the American), piping hot, dusted with pulverized sugar, and sprinkled with lemon juice.

The American pancake, or "batter-cake," is also usually raised but not to the same extent as the English. Baking powder or yeast takes the place of the ale.

French pancakes contain no leavening material other than the eggs which are included in the best receipts—it is only their thinness that prevents them from being tough. They are spread with jam or jelly, rolled up omelet fashion, covered with sugar, and glazed by melting the sugar in an oven or branding with a red-hot iron.

PANCREAS. See the article on the SWEETBREAD.

PANCREATIN, a substance obtained from the pancreas of various animals, the best being from that of the pig. It digests albuminoids, emulsifies fat if an alkaline solution is present, and (except when from the calf) converts starch into digestible sugars. Because of the last-named quality it is more generally effective than Pepsin (which see) as a remedy for indigestion. "Peptonized" gruels and soups, useful in cases of debility, may be foods partly digested by pepsin and hydrochloric acid but are preferably those treated with pancreatin.

PAPAW, or Paw-paw. As the result of an erroneous impression that they are related, there are two entirely different fruits known under the name of "papaw." One is the wild fruit of a small tree of the middle United States; the other is a product of the American tropics.

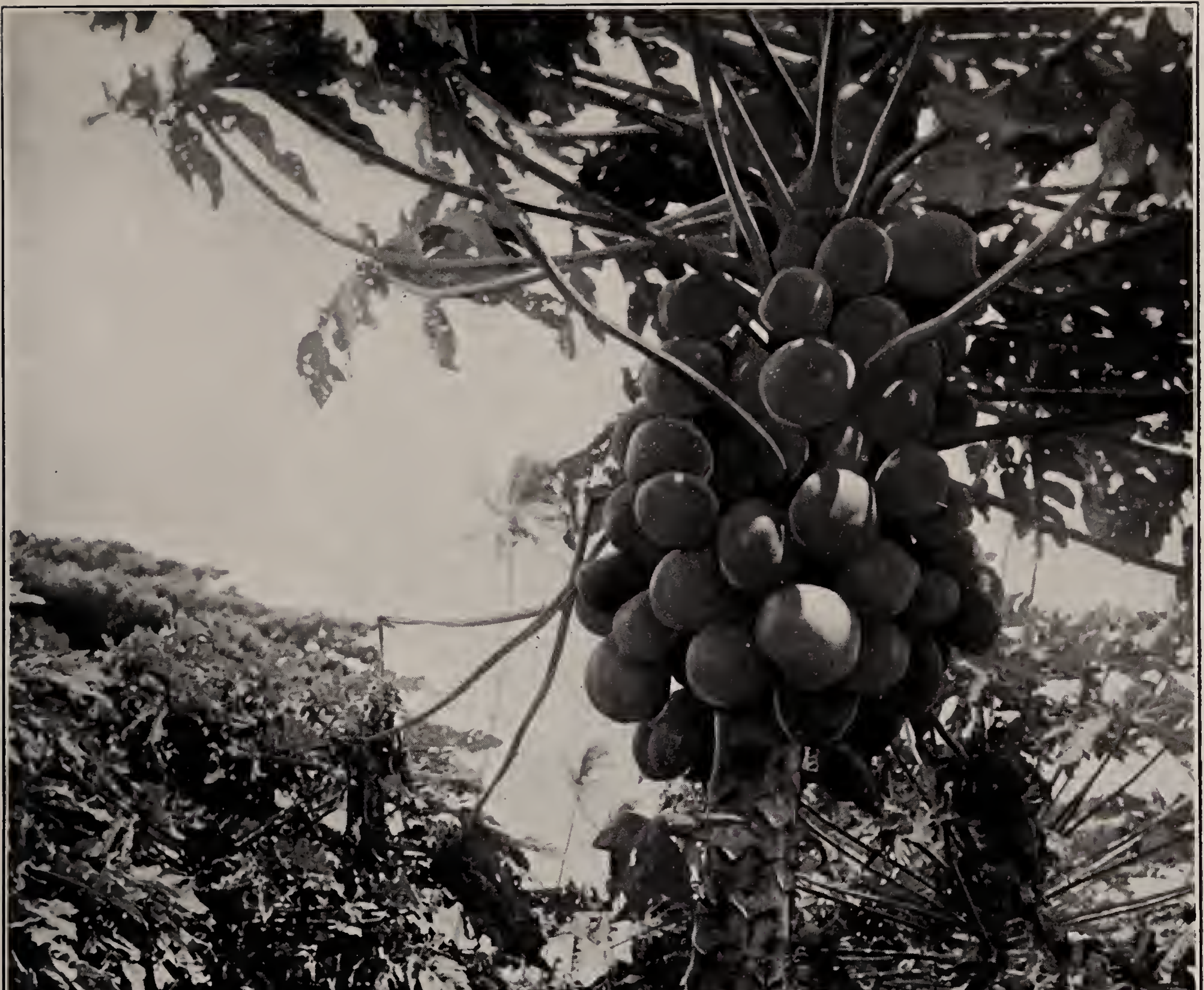
The *North-American papaw* is shaped somewhat like a banana, but is thicker and generally of a dark brown. It runs from two to six inches in length, achieving in very big specimens a weight of a pound or more. At its best, its mildly rich and aromatic, yellowish pulp pleases nearly every palate, especially when chilled or frozen, but the fruit varies greatly and in many specimens the stones seem excessive in size and the characteristic flavor is so pronounced as to be objectionable to most novices—it has been described as too nearly resembling an over-ripe muskmelon. There is similar difference in opinion concerning the flavor of the common fruits after cooking.

The *tropical papaw,* or "papaya,"—which has spread from this continent to win popularity in all tropical countries—is the fruit of a huge herbaceous plant—of palm style with a height of twenty to thirty feet—and varies from round to roughly cylindrical, and from the size of a "basket" muskmelon or smaller up to very large—twenty or more inches in length and a weight in excess of twenty pounds—with a smooth skin, yellowish to deep orange, and flesh one to two inches in thickness of the same tint, enclosing a large cavity, to the walls of which adhere a number of gelatinously coated seeds. The flesh resembles that of a muskmelon—sweet and agreeable in the best types, but in lesser grades somewhat overmusky to the novice. It is very commonly eaten as a breakfast fruit in about the same way as a muskmelon—cut in halves or sections lengthways, and served with sugar, lemon juice, salt and pepper, etc.; and in salads, and as a dessert fruit—in the last-named case frequently sliced with cream. It is also made into puddings, pies, jams, and pickles. The green fruit is occasionally boiled and served as a squash-like vegetable.

Both the fruit of the tropical papaw and the plant itself contain an enzyme known as "papain," which has much the same digestive effect as pepsin, and also "fibrine," a principle rarely found outside the animal kingdom which has been described as "blood without color." The natives rub green papaw juice over meat to make it tender, and achieve the same purpose with a fowl by wrapping it in the leaves overnight.

PAPAYA, the tropical papaw (see the article immediately preceding).

PAPRIKA, Sweet Cayenne Pepper, Hungarian Pepper, Pimienta, Pimiento, aromatic red pepper produced by drying and grinding special varieties of capsicums. The two distinctive types are *Hungarian paprika,* or Hungarian pepper, obtained from the medium large, thick-walled; dark to bright red, conical Hungarian capsicum—pungent and markedly sweet and aromatic; and *Spanish paprika,* or pimienta, or pimiento, made from the (generally) more rounded Spanish capsicum, or "pi-



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The tropical papaw

mienta"—still sweeter, also thick-walled and agreeably aromatic, and very high in color, but almost devoid of pungency.

Paprika can be employed for flavoring many dishes and as a general condiment —on baked potatoes, etc. The Hungarian type has displaced ordinary black and white pepper throughout considerable sections of Europe. The extreme (in some cases, almost neutral) mildness of Spanish paprika gives it a somewhat different field and makes it especially serviceable as a coloring agent—for sauces, soups, etc. Our supply of both kinds is chiefly imported but domestic production is increasing.

The flavor and pungency of the many offerings of paprika not only differ in general grouping as above, but also with the place of growth, and with the proportionate use of the flesh and of the seed portion—for the sweetness of the fruit is in its flesh, and its pungency in its seed tissues. Some very mild paprikas consist only of the flesh. Other grades include part of the seed-tissues and their seeds. The maximum pungency is attained by grinding the entire fruit. An excess of the natural proportion of seeds and seed-tissues is not permissible by United States standards.

The color of paprika varies both with the capsicums used and with the proportions of flesh, seed, and seed-tissue—and also with the grinding. Very fine grinding tends to produce a bright but light color.

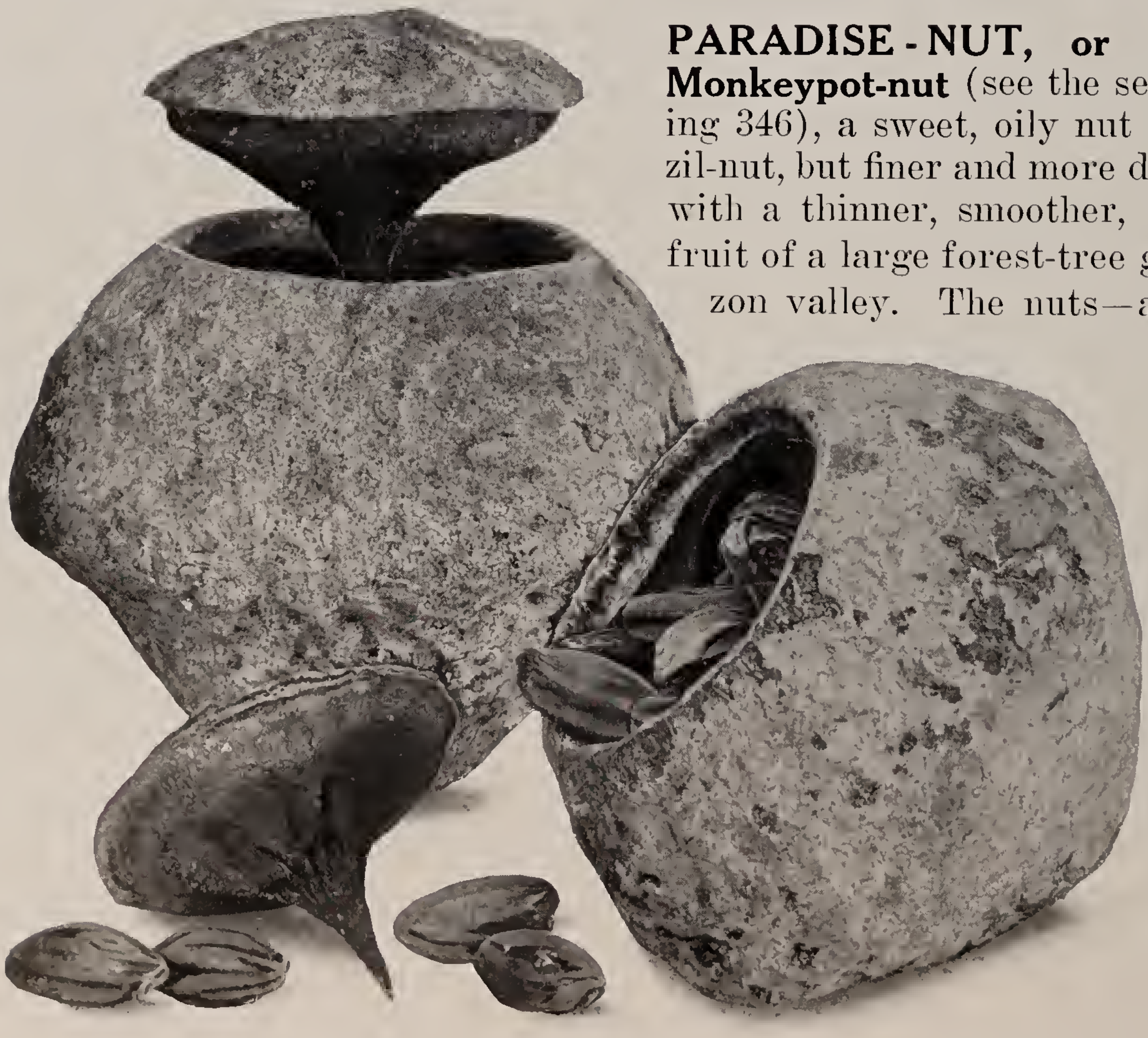
In general, mild flavor and fine reddish hue are the points preferred in this country.

"Rosen paprika" is a high grade of Hungarian paprika.

See also Peppers as a Vegetable.

PARADISE - NUT, or Sapucaia - nut, or Monkeypot-nut (see the second color-page facing 346), a sweet, oily nut resembling the Brazil-nut, but finer and more delicate in flavor, and with a thinner, smoother, easily cut shell, the fruit of a large forest-tree growing in the Amazon valley. The nuts—a quart or more together—are formed inside a large, thick - walled, urn-shaped pod, or shell, commonly known as a "monkeypot," similar in construction to that enclosing Brazil-nuts but generally much larger, with a maximum diameter of six to eleven inches and a total weight of five to twelve pounds.

The high cost and comparative



Paradise-nuts and their "monkeypots" (one-fourth linear measure) scarcity of Paradise-nuts are attributable to the fact that when the mature pod falls to the ground, the natural gas formed inside, or the contraction of the shell (or both), blows out the neatly fitting lid which nature has fashioned for the top of the urn, or "pot," scattering many of the nuts through the dense tropical undergrowth and at the same time emitting a characteristic report which brings all the monkeys in the neighborhood rushing to the feast.

PARSLEY, a kitchen-herb popular for garnishing and flavoring. For the latter purpose it is sold both fresh and dried. The variety chiefly grown—and decidedly the most attractive—is the Curly-leafed. It should be exclusively cultivated, as the poisonous wild "fool's parsley" (*Æthusa cynapium*) is easily mistaken for Plain-leaved, or Common, parsley. Plain-leaved parsley, said to be native to Egypt, is now thoroughly naturalized both here and in several European countries.

In addition to its flavoring qualities, parsley contains an essential oil which is mildly stimulating.

Hamburg Parsley, or *Turnip-rooted Parsley,* is a variety of common parsley grown for its white root—often six inches in length and with a maximum diameter of two inches—which looks like a small parsnip and is cooked in the same way. Its flavor resembles coarse celeriac.

PARSNIP, a vegetable cultivated since the days of the early Romans for the sake of its fleshy root, dingy white in color, and of a peculiar but (to many people) pleasing flavor. It runs wild in Europe and Asia. To be enjoyed at its best, it must have been grown on good soil of suitable character. As a considerable part of its food value is in its sugar content, one must emphasize the necessity of careful cooking, or much of its virtue dissolves in the free water of the saucepan.

Field-grown roots are chiefly of the long type—some varieties attaining twenty or more inches in length and a top diameter of seven inches. Home-garden cultivation is preferably of "round" varieties as they do not require such deep cultivation.

Parsnips make their best growth very late in the fall and it is customary to leave part of the crop in the ground over the winter, the roots thus retaining their flavor better than when dug and stored. Freezing does not injure them—most growers believe that it improves their flavor. Dug roots should be kept buried in sand or moss, in a cool, moist cellar or similar place, protected both from light and air-currents—otherwise they are liable to become spongy and overstrong.

PARTRIDGE. In different parts of the United States the title "partridge" is given to various American birds, but in strict parlance it is not applicable to any indigenous to the western hemisphere. All the true partridges are birds of the Old World, and the two principal species are the Grey — one of the most highly regarded game-birds, frequenting moors and open country, and especially favoring cultivated land—and the Red-legged, or "French partridge." The Hungarian and Bohemian partridges, considered particularly suitable for propagation here, are varieties of the Grey species, hardier and somewhat larger than the formerly better-known English variety—itself a bird of about twelve inches in length.

Good general usage now applies the name "American partridge" to the native Ruffed Grouse (see GROUSE). In the South it is more generally applied to the BOB-WHITE (which see).

L. F. Hursthouse

Passion-fruit growing in Florida

PASSION - FRUIT, the fruit of *Passiflora edulis,* a handsome species of passion-flower vine. It is dark purple or purple-dotted, roundish, about the size of an average hen's egg, with a tough skin enclosing a seedy, orange-colored pulp of excellent flavor. It is equally good as a fresh fruit and in pies and cakes. The vine is extensively cultivated in Australia and in New Zealand, and in parts of Africa and South and Central America. Its culture has recently been attempted in Florida. The fruit requires sub-tropical conditions for ripening, but its tough skin makes long-distance shipments possible without refrigeration.

The passion-fruit is also sometimes known as "granadilla," that title being, however, better reserved for the fruit of *P. quadrangularis* (see GRANADILLA).

PASSOVER BREAD. See MATZOTH.

PASTES. The term "paste" is popularly employed in a great diversity of ways. The chief among its food significances are the various doughs of which "pastry" is made; gluten-products such as macaroni and spaghetti, and especially and specifically (in the plural) for those stamped in small fancy forms (see the article on MACARONI and the accompanying color-page); preparations such as fish pastes (anchovy paste, etc.) and meat pastes (see POTTED AND DEVILED MEATS); and candy and confectionery forms such as almond paste, jujube paste, and fig paste.

PASTILLES, a class title for flat, rounded lozenges and similar confections. In medical practise, the word has other specific meanings.

PASTRY, a class name for a variety of articles made of light, puffy dough, as pies and tarts. The finest and richest kind is usually termed "puff paste." This requires considerable skill as its success largely depends on lightness of hand in kneading.

PÂTÉS, meat preparations, both domestic and imported from France, Germany, and elsewhere, put up in earthenware jars, tins, and boxes. They are so called because they were originally sold in pie, or "pâté," form. The most famous of all is the "Pâté de foie gras," or goose liver pâté, described under Foie Gras. Other noted examples are the chicken and ham pâtés from Rouen, France; those of truffled game and poultry from Périgueux, Angoulème, and Nérac; woodcock, from Montreuil; duck from Amiens; game from Pithiviers, Chartres, and Nogent-le-Rotrou; and fish from Abbeville. Pâtés should always be thoroughly chilled before serving.

PEA. The pea is one of our most valuable and, when ripe, one of our most nutritious vegetables. Those cultivated for table use are grouped in two main classes—"edible-podded" and "tough-podded," or shelling. Tough-podded peas may be divided into two chief types, those with smooth seeds and those with wrinkled—the former being the more attractive to the eye; the latter generally the sweeter and therefore the more desirable. Edible-podded peas are little cultivated here, but in Europe large quantities are grown for use in the same way as string-beans.

Green peas can be enjoyed at their best only if eaten within a very few hours after gathering. First-class canned peas—passed from the vine to the can in an almost incredibly short time—are preferred for flavor and delicacy to "fresh peas" that have been days in transit and storage—even though both transit and storage have been ameliorated by the most modern cooling or refrigerating systems.

The cowpea, or "field pea" of the South, belongs to the bean family (see Bean).

Peas should always be kept in a dry, cool place.

Canned Green Peas. Green peas are extensively canned both in this country and Europe.

Careful sorting and separating precede the putting up of the better grades. The general formula calls for equal quantities of brine and green peas in each can, with sometimes the addition of sugar, the sealed cans being cooked and sterilized in similar manner to other canned vegetables. The domestic output is graded as "fancy," "standard," "substandard," etc., or "fancy," "extra standard," and "standard." "Fancy" are the youngest and most succulent; "substandard" are over-developed though not fully ripened. The wrinkled varieties are generally known as "sugar" or "sweet" peas. (To avoid confusion it is well to note that in English horticultural descriptions the title "sugar peas" is specifically applied to the edible-podded type.) The old terms for size—from "petits pois" for the smallest to "telephone" for the largest—have been superseded by the numbers one to six.

The most expensive grades are those imported from France. The smallest and choicest are the *sur extra fine*.

French peas are also prepared in a number of special forms—the most important of which is *petits pois au beurre,* "small (or new) peas in butter."

Evaporated Green and Ripe Peas. During the last few years the market has taken an increasing quantity of evaporated green peas, both whole and split, domestic and imported. They are sold at much lower prices than the canned goods and they make a very pleasing dish. The peas after hulling are steamed, then slowly dried in the evaporator by a current of warm air not above 162° Fahr., and finally screened and graded by size. The smallest bring the highest prices, being both the most easily cooked and the most savory.

There is also a fair consumption of the ripe pea (whole and split) but it merits much wider appreciation. Its food value is high, and the whole kind lends itself admirably to germination (see GERMINATED SEEDS). In Europe, it is as largely consumed as the dried bean.

When preparing dried or evaporated peas for the table, they should be soaked in cold water for eight or ten hours, during which they will resume their normal size and moisture. The subsequent boiling should be long and slow to make them easily digestible, but they are well worth the trouble.

Pea, or pease, soup is especially agreeable to the palate if a little meat—as fresh beef or ham or salt pork—is boiled in it.

Whole ripe peas, fried in peanut or other oil, are eaten by Chinese youngsters with the same relish as roasted peanuts.

PEACH, a fruit closely allied to the plum and almond, cultivated in all temperate climates. It is probably native to either Persia or China—in the latter country it has been grown from time immemorial. All the common varieties are capable of general classification under ''white-fleshed'' and ''yellow-fleshed,'' both types being again roughly divisible into freestone, with flesh pulling free from the stone, and clingstone, with flesh adhering to it. Ripe white-fleshed fruits show a creamy-white undercolor; that of the yellow-fleshed may be of any of various tints from yellowish to orange.

The Peen-to, or ''flat peach,'' is a special Chinese form that reached Georgia via Australia, and has been crossed and developed into a number of styles. It is typically of flattened shape (a good deal like that of a tomato) and medium-sized, with greenish, red-cheeked skin, and light yellow flesh, clinging to a small, flat stone. The flesh is marked by a slight bitter-almond flavor.

The NECTARINE, another peach variation, is treated under its own head.

In addition to their consumption as a fresh fruit, vast quantities of peaches are canned, dried, and evaporated, principally the first-named. Clings are preferred for canning—chiefly because of their evenness of color and generally finer, firmer texture—and freestones for drying. The California output is between fifteen and twenty million bushels a year. Next as producing states come Georgia, Texas, Arkansas, and Oklahoma.

Peaches should be consumed or preserved as speedily as possible, for they deteriorate quickly. They keep best and longest—if properly selected and crated, for two to four weeks—in a temperature of 40° Fahr. Above that, the process of ripening continues and soon spoils them. Tree-ripened fruits are much superior in flavor to those from the same tree plucked hard to mature in storage or store.

Peaches should not be eaten raw unless thoroughly ripe, but in that condition they are accounted among the most wholesome of fruits.

See also ALMOND OIL, obtained from the kernels.

PEACHES

PEACH-PALM. See reference in the article on the PEJIBAVE.

PEACH-WATER, a culinary flavor, formerly much used, produced by bruising fresh peach-leaves into a pulp with water, and then distilling. It has the smell and taste of bitter almonds.

PEACOCK. During the Middle Ages, the peacock — the full-grown bird — frequently graced the banquet table, cooked whole and served with its own gorgeous plumage as garnishing. Modern European—and American—taste thinks it better suited to an exclusively ornamental life, condemning its flesh as unpleasing in flavor and generally undesirable. There exists, however, a limited demand for young peafowl, with preference for the young peahen. The flesh is abundant in proportion to the bone, but its quality is a matter of individual opinion—some declare it to be agreeable and delicate, others decry it as tasteless and dry.

PEA-FLOUR, the dried ripe pea in convenient form for easy preparation. As it is easily adulterated, caution is advisable when purchasing. It is used in the preparation of pea soup, as a thickener of other soups, or added to them in the form of small cakes or balls rendered cohesive by mixing with a little fat—and in many other ways.

PEANUT, or Earth Nut, or Goober, or Groundnut, or Ground-pea, or Monkey-nut, or Pinder. The plant which produces the fruit generally known as the Peanut in this country, and as the Groundnut in Europe, is one of a class which bury their pods in the earth to ripen instead of raising them into the air (see the color-page facing 382). In order to effect this, the flower-stalk, holding the very young pod, gradually curves downward after the flower has passed away and finally forces its point perpendicularly into the soil. When it has penetrated to a sufficient depth, the pod begins to swell, and when ripe becomes the oblong, rugged, pale brown fruit, usually containing two seeds, so well known to consumers. As the peanut is enclosed in a pod of pea-style and its flesh is nut-like in composition and flavor, its popularly-evolved title has much to commend it.

From twenty-five to thirty million bushels of peanuts are annually raised in the United States, and another huge aggregate total in Africa, Spain, China, Japan, and Java. From its original home—probably tropical America—it has spread to every tropical and sub-tropical country.

A considerable proportion of the American crop is converted into peanut butter and peanut oil. A large quantity is consumed also in the form of peanut candy, and there is a growing market for peanut meal and various other products. The few million pounds of the crop annually exported are more than offset by importations from Japan, China, and other parts of the Orient.

The hundreds of millions of pounds sent to Europe every year from Africa and Asia are chiefly converted into oils and flour in factories at Marseilles, France—and in lesser quantities at other points on the Continent and in England.

The commercial history of the peanut in this country commences with the Civil War. Before that time, only a few garden plants were grown in Virginia and the Carolinas for family use—almost as curiosities. During the war, soldiers discovered that the "nuts" made excellent food, and the result was that in the years succeeding the end of hostilities the acreage assigned to them steadily increased, until to-day their cultivation covers nearly one and a half million acres.

Alabama, North Carolina, and Virginia produce more than half of the present total crop, but every year sees greater attention devoted to it in other states, especially in Texas, Georgia, and Florida.

The best known types of American peanuts are Virginia runner, Virginia bunch, "Spanish," Valencia, and "African" (or North Carolina).

The terms "runner" and "bunch"—applicable also to other than Virginia strains—refer to the manner of plant growth. The types which "bunch"—i.e., which incline to an upright rather than a "runner," or along-the-ground, vine-growth and which therefore group their fruits—are generally preferred by planters because they can be seeded more closely and are more easily cultivated and harvested.

The Spanish and Valencia are "quick" crops. The African and Virginia require a longer season for development.

The Spanish and Valencia and African are very rich in oil and mild in flavor. The first two are small-seeded; the African has seeds of medium size. The Virginias are large seeded, of smaller oil percentage, and of more pronounced flavor.

Peanuts retailed in their shells, roasted or otherwise, are chiefly large Virginias. The shelled salted nuts are principally smaller Virginias, Spanish, Valencias, and Africans, but there is also an increasing quantity of the "extra large" Virginias shelled and salted for fancy packing—the nuts roasted, skinned, and kept whole, presenting a very attractive and appetizing appearance. "Jumbo" peanuts are especially large specimens picked out by hand as they pass along the inspection belts.

As American trade demands a bright-looking shell, and the pod is affected by the color and mineral constituents of the ground in which it grows, the soil most desirable is a light, sandy loam. Lime is an essential ingredient, and the soil must be kept loose or the ovary cannot bury itself and develop its pod. The general practise among American growers is to "bank" the rows to some extent at the last cultivation in order to provide an easily reached bed to receive the pod and facilitate its maximum development.

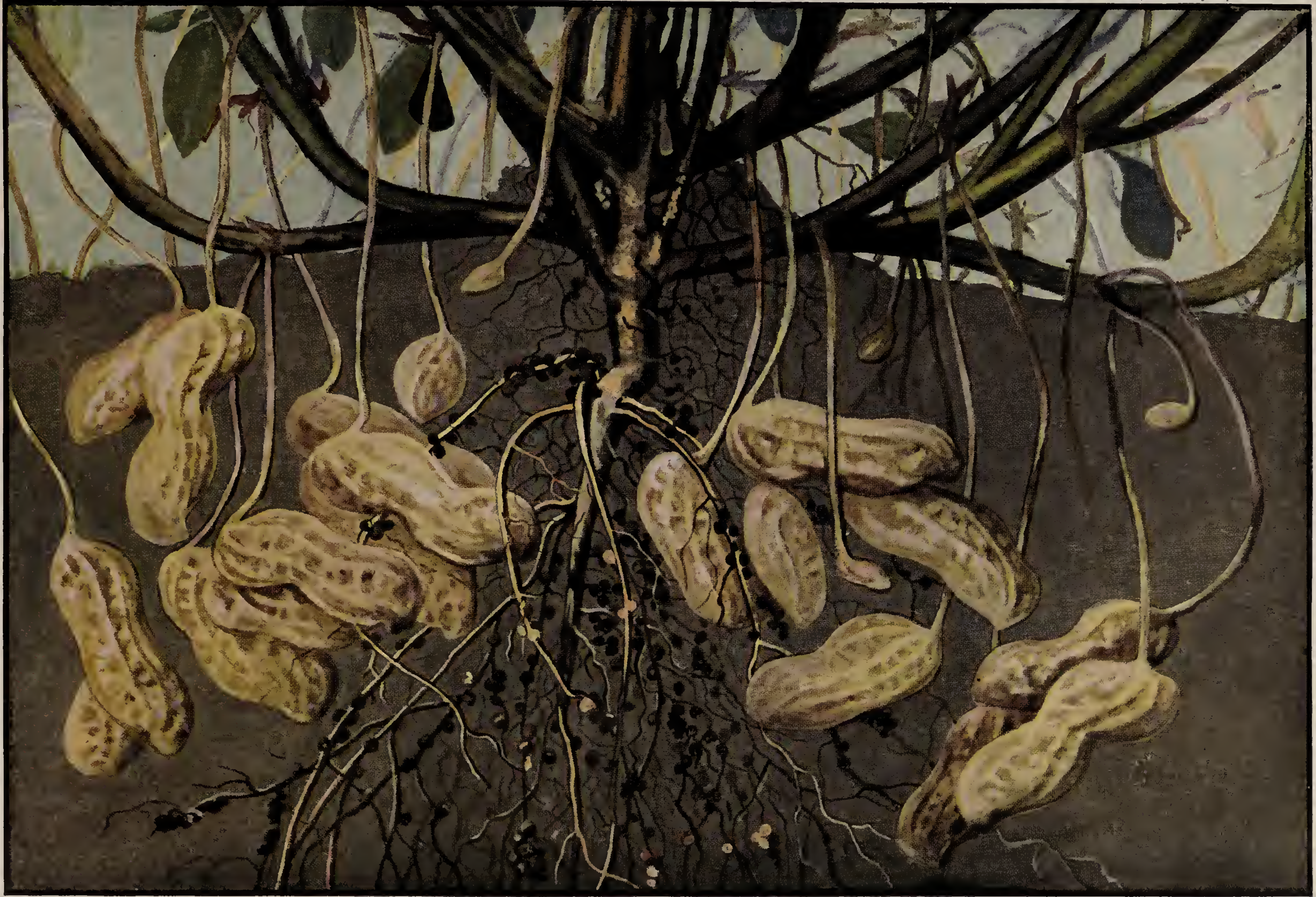
With harvest time comes a three-fold consideration for the modern planter. Most important is of course a maximum crop of peanuts in the best marketable condition. But additional desiderata are a method of cropping which leaves in the soil as much as possible of the root system (for peanut roots are rich in nitrogen-growing bacteria), and care for the condition—in cutting and curing—of the upper part of the plant, for the entire vine after the removal of the nuts is utilized as cattle-food and ranks as about equal to clover hay.

After digging, the vines (with the peanuts still attached) are laid on the ground for a short time to dry out their surface moisture. They are then stacked to cure in small, sloping stacks—the peanuts in the center in order to prevent their discoloration by rain.

Next come the "picking" of the peanuts from the vines (generally by machinery), cleaning, and grading—with a final polishing for the best whole-pod product.

For Peanut Butter, Peanut Meal and Flour, and Peanut Oil, all of which are treated separately, the grading is succeeded by shelling, roasting, blanching (removing the skins and germs), etc.

There is full use for all the by-products of peanut factories. The shells are generally burned as fuel and their ashes returned to the soil as fertilizer. They are



A PEANUT PLANT—soil removed to show some of its ripe fruit

also ground into a meal which is employed in large quantities by steel mills as a metal polish. The germs and the thin inside coverings of the nuts are consumed as cattle and poultry food.

PEANUT BUTTER, roasted, skinned, de-germed peanuts ground to a paste. It is very nutritious, containing the full food value of the peanut in an easily edible form. An average of analyses shows approximately 29.3 of assimilable protein, 46.5 fat, and 17.1 carbohydrates (see the article on Food Values). It is consumed both as an agreeable ''nut food'' and as a ''spread'' for bread, or bread and butter, and in many other ways. The commercial product is generally a mixture of Virginia and Spanish peanuts—a straight Virginia butter lacks the desired smoothness; a straight Spanish lacks flavor and is too oily.

If oil stands on the top of the butter, it should be stirred in well before using.

PEANUT MEAL and FLOUR, ground peanuts from which the greater part of the oil has been extracted. The finer grades are sold in large quantities to the bakery and candy trades for use in the manufacture of various kinds of cakes (as almond macaroons), breads, and confections. Inferior qualities are consumed as stock-food and in divers other ways. Economists urge the more extended use of these products as human food because of their richness in assimilable protein. In Europe, the flour is baked into a bread which has a large sale in Germany and France.

Peanuts stacked for curing

PEANUT OIL, if of the best grade—i.e., obtained by the cold pressing of sound peanuts, and well filtered—is a sweet, brilliant, and delectable product, nearly colorless, and serviceable alike for table use, cooking, and preserving. Lesser grades—from old and otherwise undesirable peanuts—can be made acceptable by refining and bleaching, but they lack character and delicacy. Large quantities are consumed (both separate and blended) as salad oil and in NUT-BUTTER (which see). In France, it is extensively used also in the packing of the cheaper qualities of sardines and numerous other food products. The industrial grades are employed in the making of fine silks because it does not readily turn rancid, and as a lubricant for fine machinery because it does not "gum."

The domestic output is supplemented by millions of gallons of imported—chiefly from Japan and China.

A bushel of selected, shelled nuts will yield about a gallon of good-quality oil and an additional supply of an inferior product.

PEAR, a fruit with a long and honorable history, and with its trees spanning the globe, yet which has received less attention and less favor from recent generations in the United States than many other fruits of no greater merit. This is partly explained from the standpoint of the modern consumer by the number of its rivals during its main bearing season—and, commercially, both by (in most types) the poor keeping quality of fully ripened table varieties, and by greater difficulties in culture and marketing compared with (for example) its close relative, the apple.

Centuries of cultivation have resulted in a great many varieties—more than a thousand—ranging from the small Seckel to the marvelous fruit grown on the Island of Jersey, one of the Channel Islands between England and France. These Jersey pears frequently bring a price of seventy-two dollars or more a dozen in the London market. Only a few of them can, though, be grown on each tree.

Our pears are of two chief types—the European stock, and hybrids of the European with the ornamental Chinese, or "sand," pear. The European pears—cultivated in New York and New England from early colonial days—include the Bartlett and Anjou, of general cultivation in the northeast and north-central states and on the Pacific slope, and the Russian varieties more recently introduced into the north-central section. The best known of the European-Sand hybrids are the Kieffer and Le Conte, both of them extensively grown in the east and south—in the latter, these hybrid pears have proved the only varieties commercially successful. The sand-pear itself is not edible raw but it makes acceptable preserves.

The Bartlett (the *bon-chrétien* of Europe) is the best of all pears of commercial cultivation—it is of good flavor, appearance, and size (see the color-page opposite), a better keeper than most of the special table varieties, and equally adapted for consumption fresh and canned. In California almost the entire crop is of Bartletts or "Bartlett-style" fruits.

The Kieffer, yellow, russet, or brown, pear-shaped or roundish, and Le Conte, yellow and oblong, are less choice as table fruits. They are, though, desirable in size—Le Conte averages large and Kieffer medium large—and excellent for both cooking and canning.

The Seckel, a third American hybrid development, is small and thick-skinned—but it keeps well, and good specimens are sweet and delicious. In color, it may be yellow, or reddish, or brown, or russet, and in shape, either roundish or pear-style.

BARTLETT PEARS

Winter pears—such as the Winter Nelis—are cultivated to only a small extent in the east—which seems a pity because, though the average crop is not large, the fruit, if gathered before quite ripe, will (with a little care) keep for three or four months.

Unlike most fruits, pears are improved in flavor by ripening indoors. They are best gathered when fully developed in size and shape and when they have begun to color, but before they have commenced to soften. In this condition they may be held for a long time in cold storage. To ripen them for eating, they should be placed in shallow trays in a moderately warm room (about 60° Fahr.) and protected from air-currents. Excessive heat must be guarded against, or the fruit may rot inside even though the exterior give no warning of the change. Crowding also should be avoided as much as possible.

Canned pears are preferably white in flesh. A strong pink tint is generally the result of over-cooking—though very seldom to the point of injuring the flavor. If the flavor is good, the pink tint may be overlooked as it is difficult to can pears without discoloring them to some extent.

Pears are excellent baked—as one bakes apples. The large green fruits are the best for the purpose.

In south-central Europe they are preserved for winter use by drying and smoking. The resultant product—hard, black, and wrinkled—keeps indefinitely. It is variously consumed in soups, stewed, etc.

PEARL MOSS, one of the many names for Irish Moss, or CARRAGHEEN (which see).

PECAN, a species of hickory-nut, the fruit of a big tree growing wild throughout the Mississippi valley and the river valleys of Texas, and further extended, both east and west, by commercial cultivation. It is agreeable in flavor, with a very sweet and oily meat, and (in the best "paper-shell" varieties) a shell that is easily cracked. It is generally olive-shaped, the chief exceptions being the sharp-pointed and oblong strains. The greater part of the crop is from the wild trees, but the output of planted orchards is steadily increasing. See the second color-page opposite 346 and also the general NUT article.

PECTIN, a substance present in many plants, whose chief food importance is its formation in fruit pulps during the ripening process and its faculty of causing the cooked fruit to thicken and jellify. It is closely allied to the jellying principle—the vegetable "gelatin," or "isinglass"—of lichens and seaweeds (see especially SEAWEED and AGAR-AGAR). It is markedly present in apples, cranberries, currants, gooseberries, guavas, and quinces, and is almost absent from raspberries, strawberries, and some other fruits. See also the article on JELLY.

PEJIBAVE, the fruit of a tall palm (*Bactris utilis*), borne in large numbers and important as a food staple in parts of South America. It is generally top-shaped or oval, one to two inches in length, with a thin skin varying from light yellow to dark brown, and (generally) a single, black, angularly-conical seed. The best types are seedless. The ordinary method of preparation is a simple boiling in salted water — its dry, somewhat mealy flesh then suggesting the chestnut and being

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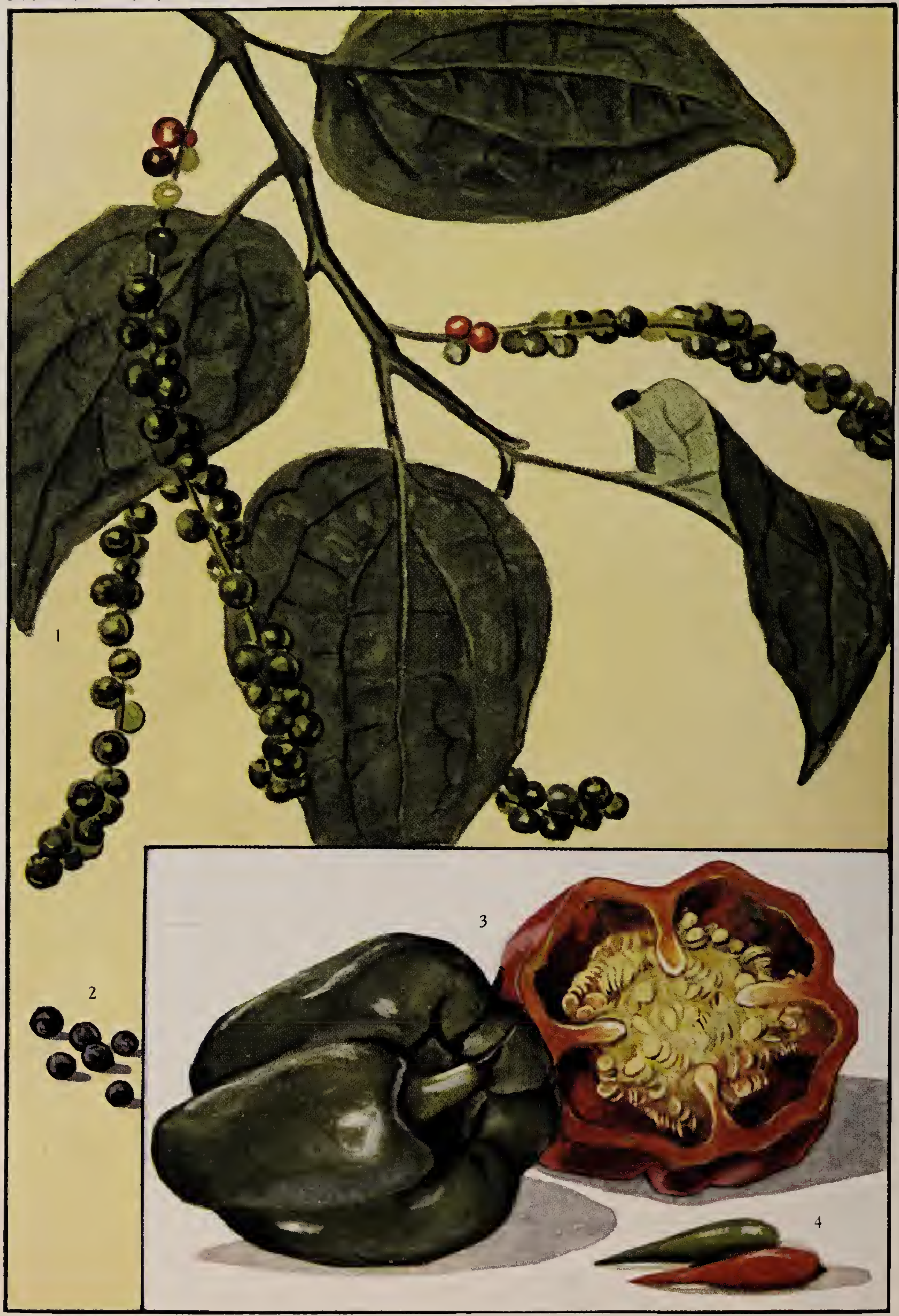
Pejibaves

almost universally liked. Its food value rests chiefly on its large percentage of starchy matter, supplemented by a fair proportion of fat. It is excellent for stuffing poultry.

Closely allied and perhaps identical is the ''peach-palm'' of South-American regions (generally recorded as *Bactris Gasipaes*), its fruit eaten roasted or otherwise cooked, and also (in dried, ground, meal form) made into ''cakes'' or bread. Of the same genus is the smaller Brazilian ''beach-palm'' (*B. major*) with similarly used fruits about the size of an apricot.

PEMMICAN, an invention of the American Indian, is (by the old native formula) lean beef or venison dried until hard, pounded to a powder, mixed with melted fat, and pressed into cakes. Acid berries were frequently added for flavor. It is now a commercial article manufactured on a considerable scale both here and in Australia —ordinarily of beef, with sometimes the further addition of sugar and other ingredients, the ''acid berries'' being replaced by dried currants. It is especially suitable for Arctic exploration and other long-extended expeditions, as it will keep indefinitely if protected from moisture.

PENGUIN EGGS, the eggs of the penguin, a flightless bird found in all high southern latitudes—in especially large numbers along the coast of the Cape of Good Hope, South Africa, and the adjacent islands. They resemble large ''plover's eggs'' in texture and flavor, and are very rich. They are consumed by all classes in South Africa but the expense and risk of transportation make them a luxury when exported to other countries. They are eaten boiled—twenty minutes being the best boiling time—baked, fried, in salads, etc.



(1) Piper Nigrum L.
"Black" and "White" Pepper
(2) Peppercorns

(3) Common Capsicums
Fresh Peppers: Common
"Red Pepper," etc.

(4) Small-fruited Capsicums
Cayenne Pepper
and Chillies

PENNYROYAL. See the general article on MINT.

PEPINO, or Melon-pear, a fruit or vegetable native to temperate elevations of tropical South America which has received some attention here. It is borne by a bushy plant and is generally egg-shaped, three to six inches in length, long-stalked and drooping, of lemon color streaked with violet. The interior is a solid, seedless pulp of light yellow, tender and aromatic.

PEPPER. The black and white powdered peppers used as condiments consist of the ground, dried fruits of *Piper nigrum,* a perennial climbing shrub native to the forests of western and southern India which has for centuries been cultivated also on the Malay Peninsula and adjacent islands, and in Sumatra, Java, Ceylon, and Siam, as well as to a limited extent in Borneo and various other tropical countries. The fruit is a small, round berry, the "peppercorn," growing in loosely packed clusters of from twenty to thirty, closely attached to a common fruit-stalk (see the color-page opposite). Pieces of the stalk may often be found in whole black peppercorns and examination will show the depressions formed where the berries were attached. The shrub or vine grows to a height of eight to twelve feet and is supported either by poles or trees. A photograph of a pepper plantation at gathering time is reproduced on page 388.

Historically, pepper is of high interest. It was apparently one of the first spices to be trafficked in by mankind and was for hundreds of years an important article of commerce between India and Europe. Three thousand pounds of it was part of the ransom of Rome demanded by Alaricus, the Visigoth, in the first decade of the fifth century, and more than a thousand years later it was still so greatly in demand as to constitute one of the chief impulses to the many Portuguese efforts—finally successful in 1498—to reach India by sailing around the African continent in order to obtain it without paying the exorbitant prices which resulted from the commercial gauntlet it otherwise necessarily ran in passing through the Ottoman barrier to the overland route from India.

Black Pepper consists of the whole immature berries, gathered as soon as one or two on the clusters commence to turn red and then dried in the sun or near a mild fire, the outer fleshy portion of the berry shriveling in the process, turning brown or black and becoming hard, brittle, and adherent to the stony inner portion, thus forming a hardened wrinkled cortex. The Dutch East Indies is the main source of our supply, with the British Straits Settlements and India next in importance.

Among the principal commercial classifications are Malabar (Mangalore, Tellicherry, Alleppey, etc.), Singapore, Penang and Trang, Acheen (or Sumatra, or West Coast), and Lampong (or East Coast), named either from the place of cultivation or that of shipment. Others, ordinarily of less consequence, include Japan and Siam.

As a general rule, the heavier the peppercorns for size, the better the grade. They should be firm and round, clean and uniform in appearance, and not too much furrowed.

White Pepper is made by grinding the peppercorns after the removal of their dark outer shells—either ripe or immature berries being used. It is less pungent but more flavory than black pepper. It is manufactured both on the plantations and by merchants who buy the peppercorns in open market.

Decorticated white pepper is of peppercorns from which the seed-coats also have been partly or entirely removed. There are numerous qualities according to the length to which the process is carried. The most expensive—with smooth, hard, pearly kernels—is minus all the seed-coats.

The classification of white pepper is similar to that of black pepper—Singapore, Penang, Tellicherry, Siam, and various other listings.

Coriander white pepper is a product of especially attractive appearance—screened to uniform size and then bleached.

Long Pepper, as marketed here, is the dried immature fruit-spike of a plant of a different species (*P. longum*), native to the hottest parts of India, Ceylon, and Malaysia. The spikes are about 1½ inches in length and one-quarter of an inch or so in diameter — a central stem covered with closely packed, very small, round berries, the whole hardened together. The product is crudely prepared and generally includes a large amount of dirt and other extraneous matter. It does not possess the fine flavor or strength of true pepper and its addition to the latter, either whole or ground, is rated as adulteration. Its principal use is for pickles.

Pepper-plants, the kind which give black and white pepper

International

Sorting chilies, Japan

Red Pepper, Cayenne Pepper, Paprika, Tabasco. Ordinary *red pepper* is the powdered ripe pod, both flesh and seeds or the flesh alone, of any variety of the species of capsicum which gives the edible fresh pepper (see CAPSICUMS and PEPPERS AS A VEGETABLE, following). It bears no relation to the true pepper-plant.

The capsicums constitute a native American genus and were unknown to the Old World until after Columbus's arrival here, so red pepper does not share the historical fame of black pepper.

Supplementing the use of red pepper as a condiment is its employment by makers of gingersnaps, ginger ale, and similar products to enhance their pungency.

Cayenne pepper is distinguished from red pepper in general as being obtained only from small-fruited capsicums, the most noted being those of the *frutescens* species, especially the typical form, the ''spur,'' or ''goat,'' pepper, with very small, narrow, red pods, straight or curved, from one-half to 1½ inches in length, and the variety *baccatum* (''bird,'' or ''berry,'' pepper), with small, roundish fruits about one-quarter of an inch in diameter. Both of these, and kindred varieties, are now cultivated in many tropical and sub-tropical countries—including our own southern states—to be used and known chiefly as CHILIES (which see).

Cayenne pepper is made in two distinctive ways: by simply drying the pods and then grinding them to a fine powder; and by following drying and grinding by mixing with flour, leavening with yeast, shaping into small cakes, and baking hard, the cakes being then ground and sifted. It should ordinarily be of dull red color.

The best known commercial types of general importance are the East-African, Zanzibar, Mombassa, and Sierra Leone; the Indian ''cherry''; and the Japan. The last-named is less pungent than the others.

Nepaul pepper, from a capsicum grown in Nepaul, India, is a particularly choice variety—yellowish-red, very pungent, and of excellent flavor.

Cayenne is a powerful stimulant, producing a sense of heat in the stomach and a general glow throughout the body without narcotic effect. In small amounts it is an aid to digestion, particularly of vegetables, which partly accounts for its more general use in warm weather.

PAPRIKA (which see) is the product of Hungarian and Spanish varieties of large red peppers.

TABASCO (which see) is an American product of a special, long-fruited pepper.

All pepper should be kept from exposure to moisture, the air, and sunlight.

International

Growing peppers (capsicums)

Peppers as a Vegetable. The fresh "peppers" cultivated as a vegetable and consumed green and ripe, fresh and canned and dried, are generally mild-flavored, large-fruited varieties of capsicums—particularly of the fleshy, finely colored, Spanish "pimienta" type which gives Spanish paprika. They may be prepared for the table in numerous ways—plain as a relish, "stuffed" (for immediate use or for pickling), mixed with hashed meat, and added (for both color and flavor) to soups, sauces, and catchups. To many people, the flesh of the fully ripe, especially sweet varieties is enjoyable eaten raw as a fruit. All kinds are extensively used in the commercial manufacture of condiments and sauces, for stuffing olives, etc.

In the tropics the capsicum is a perennial but in the United States it is cultivated as an annual. It is easily grown in any rich soil, and in almost any part of the United States. It should be started early in a hotbed, or in a greenhouse, and treated in much the same way as the tomato and eggplant.

The many varieties differ chiefly in the shape of their fruits, which, when ripe, turn to red, yellow, or dark violet—shiny and brilliant when fresh; becoming duller and wrinkled in drying.

PEPPERCORN, the whole berry of the pepper-plant. See Pepper.

PEPPERGRASS, or Peppercress, one of several names for garden-cress (see Cress).

Drying peppers (capsicums)

PEPPERMINT, the most widely cultivated variety of Mint (which see).

PEPPER-POT, a national soup-stew of the West Indies which has won fame in the United States. Originally it was composed of various meats or fish, with vegetables (okra-pods and others), etc., finished and seasoned with cassareep or chilies, but many modifications have been made by local cooks.

"Philadelphia pepper-pot" consists essentially of stewed tripe and small dumplings heightened by a very liberal quantity of pepper.

PEPPER SAUCE, a preparation of red capsicums, generally of the chili type, steeped in vinegar, etc. See also Tabasco.

PEPPER-TREE (*Schinus Molle*), a handsome evergreen tree popular in California until it was found to spread black scale to orange groves. It has no connection with either the true pepper or the capsicum but its pink berries (used medicinally in South America) are about the size of peppercorns and are hot to the taste.

PEPSIN, a ferment, or enzyme, related to the proteins, contained in the gastric juices of humans and other mammals. The commercial product is obtained from the mucous stomach-lining of the pig, calf, or sheep. It is useful medicinally as a digestive aid for children, invalids, and old people, but it should be remembered that it digests only albuminoids—as the casein of milk and the chief solids of lean meat and eggs—not fats or carbohydrates. Ignorance of this is the cause of many disappointments when pepsin is used as a domestic remedy for indigestion. (See also Pancreatin and reference in it to peptonized foods.) The liquid pepsin of the medicine chest may be employed to jelly milk in the same way as rennet (see Rennet and Junket).

PERCH, a title which embraces a large family of fresh-water fishes found in all parts of the world. The chief American representative is the Yellow, or "Barred," or "Ring" Perch (see color-page opposite 534) abounding in many of the fresh waters, especially the lakes, of the northern states east of the Missouri River. Good average specimens weigh up to two pounds and reach a length of fourteen inches—large fish considerably exceeding those figures. Its color varies, but typically its back is greenish-brown, its sides yellow with dark bars, and its underparts white.

Wall-eyed pike

Another important genus includes the pike-perches. The best of these is the big Wall-eyed Pike, plentiful in the Great Lakes, where it averages nearly ten pounds in weight and has been known to reach twenty-five. Elsewhere its weight is less. The smaller "blue pike" is merely a young wall-eyed pike.

PERRY, a fermented liquor prepared from pears as cider is from apples.

PERSIMMON (see the color-page opposite), a fruit concerning which there is much confusion of information—and misinformation—even in works otherwise generally reliable. This is probably because there are two distinct American-grown fruits bearing the title—the North-American, a wild tree found chiefly in the southern states, and the Japanese, an imported species, belonging to the same genus but with many points of difference in size and character.

The *American persimmon* is generally flattened or roundish (sometimes inclined to oblong or egg-shaped), half an inch to two inches in diameter, with or without seeds, and usually yellow but sometimes inclined to red or marked with it. It is borne by a tree which, under favorable forest conditions, reaches a great size.

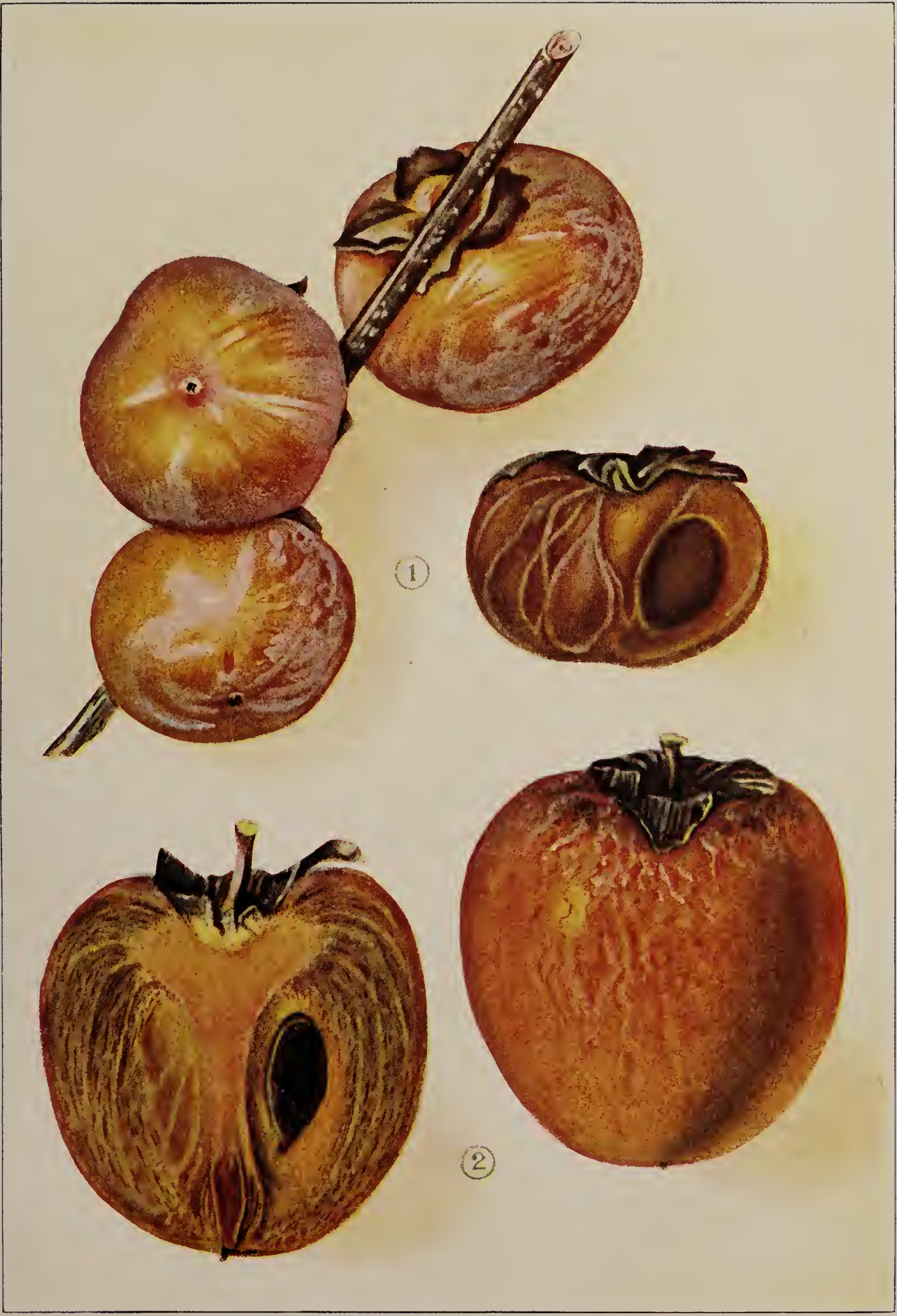
As might be expected in a wild fruit, the specimens marketed vary greatly in value. The average fruit—though excessively astringent when green—is edible when "dead ripe," but some trees produce fruits which never become edible—their powerful astringency resisting every effort of the warmest southern sun. On the other hand, the best types become veritable sugar-plums at maturity. Among commercial fruits they are exceeded in sugar content only by the date. Their sweetness has indeed earned for them the nickname of the American "date-plum," and the oddly wrinkled lumps of richly concentrated sugar-flesh hanging among the varicolored leaves of autumn are as eagerly sought by "possums" and other wild creatures as by human beings. In earlier days, the Indians mixed their pulp with crushed corn to make a kind of bread.

There is no merit in the old theory that the frost touch is necessary to the native persimmon's full perfection. Its wide acceptance has resulted annually in thousands of choice early-ripening fruits being lost to humanity. It is *superlatively full maturity* that is necessary, not frost—but the theory has long received credence because it happens that many trees do not ripen their fruit until so late in the season that the frost king frequently comes around before the work is completed.

The American persimmon is particularly good for preserves and fresh-cooked in many ways—in cakes, puddings, and muffins. Those who are not sufficiently familiar with the fruit to be sure that it has lost its astringency will do well to add half a teaspoonful of bicarbonate of soda (baking-soda) to each cupful of persimmon pulp, as heat accentuates the astringency.

The *Japanese persimmon,* or "ka-ki," or "Chinese fig," is comparatively new to North-American horticulturists but it has long been under cultivation in Japan and also for a full century in southern France. It is produced by a tree that is always small and in some strains does not exceed a height of six feet.

The fruits may be divided into two chief styles—one that is non-astringent and has sweet, crisp flesh, and the other that is hard and astringent until fully ripe and then becomes sweet, soft, and juicy. The latter is generally about right when the skin commences to wrinkle and the flesh to soften to a slippery, almost custardy consistence. The non-astringent type may improve by softening, but it is pleasingly edible in the crisp condition of initial ripeness—and can be eaten before ripening. Some fruits show both kinds of flesh. The color both of skin and flesh varies in both kinds—the former from light yellow to brown (the dark-colored flesh often marking the non-astringent) and the latter from yellow to dark red. The shape ranges from round to elongated, and the size from comparatively small to specimens weighing more than a pound. The fruit chiefly marketed here is of the soft, juicy type, suggesting both a yellowish-red apple and a tomato in shape, color, and size.



(1) American (2) Japanese

PERSIMMONS

Such persimmons are excellent for eating raw, but the non-astringent kind should be chosen for preserving.

The cultivation of selected varieties of the Japanese persimmon will probably be greatly extended in the future as they grow freely and produce prolifically under "cotton belt" conditions. If warranted by the demand, the growing range can be extended northward by the planting of northern China and Japan varieties.

Petsai

PETITE MARMITE, a famous French soup, now retailed in canned form, which consists of beef stock, together with the meat cut into small pieces, and numerous vegetables (such as carrots, cabbage, turnips, and celery) in long sections. It is of the same order as *pôt-au-feu* ("pot on the fire"), the national home-made beef and vegetable soup of the French peasant, except that it is richer and sometimes contains chicken, marrow bones, etc. The title signifies "little pot," the reference being to the earthenware cooking-pot which forms part of the household equipment of every French family. Similar pots, obtainable from crockery dealers, are very appropriate for its service.

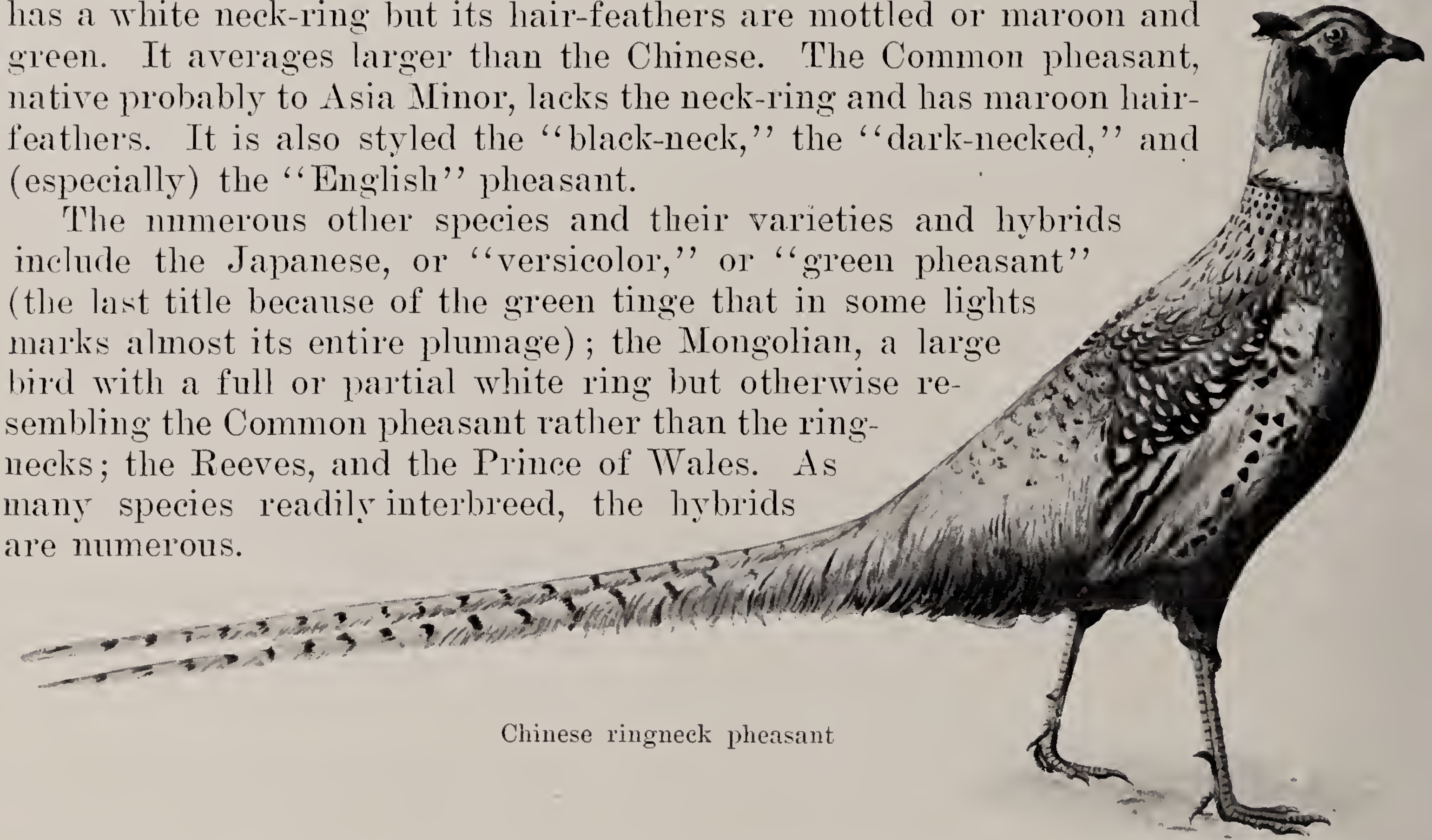
PETSAI, or Chinese Cabbage, or Celery Cabbage, a salad-vegetable which has recently spread from the Chinese to the American market-garden. It forms a close, erect, elongated head, pale green to white, resembling romaine lettuce but ten to sixteen inches in height, enclosed in outer leaves of cabbage style. Stripped of its cabbage-like wrapper, its length and general appearance suggest a cross between lettuce and celery. The inner leaves are crisp and delicate, fully equal to the best lettuce as salad. It is also excellent as a boiled vegetable. Cooking should be brief because of its initial tenderness.

The great advantage that petsai offers to American gardeners is that it is as good for table purposes as lettuce, while for the same labor and expense giving more than double the crop.

PHEASANT. Pheasants have many claims to interest—they are "good shooting," their flesh is excellent, and some varieties are extremely beautiful.

The best known in this country are the Chinese ringneck and the English ringneck. The former, native to eastern China, is superior both as a game and table bird. It is distinguished by the broad white ring around its neck and the green hue of the hair-like feathers of the lower back. The English ringneck is, primarily, a naturalized cross of the Chinese and the Common pheasant. It also has a white neck-ring but its hair-feathers are mottled or maroon and green. It averages larger than the Chinese. The Common pheasant, native probably to Asia Minor, lacks the neck-ring and has maroon hair-feathers. It is also styled the "black-neck," the "dark-necked," and (especially) the "English" pheasant.

The numerous other species and their varieties and hybrids include the Japanese, or "versicolor," or "green pheasant" (the last title because of the green tinge that in some lights marks almost its entire plumage); the Mongolian, a large bird with a full or partial white ring but otherwise resembling the Common pheasant rather than the ringnecks; the Reeves, and the Prince of Wales. As many species readily interbreed, the hybrids are numerous.



Chinese ringneck pheasant

In this country English ringnecks and their crosses are the most common pheasants in the east, and the Chinese ringneck (known here also as the "Oregon" and "Denny") along the Pacific slope.

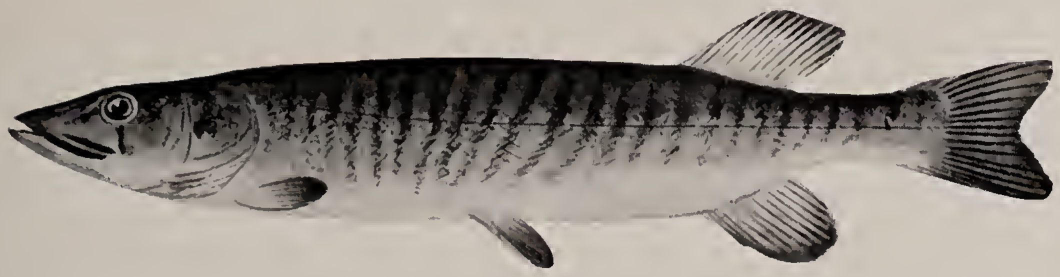
An interesting industry is the rearing of pheasants in captivity. If the conditions are suitable, the flesh of the birds is nearly as full flavored as that of the wild creatures, with the added advantage of noticeably greater tenderness.

Other pheasants, unsuitable for covert propagation but always a source of admiration in aviaries, are the Golden and the Silver and still more resplendent species such as the Lady Amherst. These gorgeous birds are native to Indo-Chinese territories and the lower Himalayas.

Before cooking, a pheasant should be hung until its gamy flavor is pronounced.

The title "pheasant" is also incorrectly applied to the Ruffed Grouse (see Grouse).

PICCALILLI, or Indian Pickle, a mustard-vinegar, or otherwise very highly seasoned, pickle which contains a diverse assortment of cut vegetables—cucumbers, white cabbage, onions, green tomatoes, celery, cauliflower, peppers, etc.



Pickerel

PICKEREL, a title applied to several of the smaller species of Pike (which see) and to the young of larger species. Of the former, the most important is the Eastern pickerel (or "green pike," or "Jack") which attains a maximum length of about two feet and offers firm and flaky—but rather dry—flesh of agreeable flavor. Its characteristically long, slender body—with long head and large mouth—is generally greenish in back color, with a golden lustre and numerous dark markings on the sides.

The title "pickerel" is also, unfortunately, accorded in some parts to the large common pike.

PICKLES, a term applied to vegetables and fruits preserved, singly or mixed, in vinegar, mustard, etc., and variously flavored. Among the most popular are cauliflower, chilies, cucumbers, gherkins, mango-melons, and onions; chow-chow, "mixed pickles," and piccalilli. Large quantities are imported, but the greater part of the consumption is of the domestic product.

One of the most noticeable differences in flavor between American and English pickles is attributable to the general use of malt vinegar in Great Britain, whereas cider and spirit vinegars are commonly employed here.

Pickles should be kept in a tightly covered receptacle and stored in a dark, dry, moderately cool place. An upper shelf is in many store-rooms a location to be avoided, for it is liable to be hot there, and heat is detrimental. Excessive cold is also injurious—brine pickles do not freeze easily, but vinegar goods freeze nearly as quickly as water. They should always be thoroughly immersed in their liquid, otherwise they quickly dry and become moldy. They should also be stirred from time to time, as both strong brine and sweet vinegar have a tendency to sink to the bottom, leaving a weakened liquid on top, in which they are liable to soften and spoil. Any scum should be removed as it tends to softening. Cider or other table vinegar should be used for refilling leakages in vinegar pickles.

See also articles on Capers, Olives, Peppers as a Vegetable, etc.

PIE-PLANT, a familiar title for the cultivated Rhubarb.

PIGEON. In this country there is little favor for the adult pigeon as a poultry bird—it is too tough both for our tastes and for our national cookery—but the young birds are very highly regarded. See Squab.

PIGNOLIAS, a trade title for imported Pine-nuts (which see).

PIKE, a family name for a valuable group of fresh-water food and game fishes. It includes the small species preferably known as Pickerel and also the big Muscallonge, both of which are treated under their own heads. The species to which the title is best applied specifically is *Esox lucius*—the common pike, or "Great Lakes pike"—a long, slender creature with long, broad, flattened snout and big mouth, greyish blue or greyish green in general color, with many whitish or yellowish spots. It is freely found in the waters of the upper Mississippi valley and of the Great Lakes, and elsewhere in the northern United States east of the Rockies, and Canada, and Alaska—as well as in parts of Europe and Asia. Its market weight seldom exceeds eight pounds, but big specimens have exceeded forty pounds and a length of four feet.

The "wall-eyed pike" is a pike-perch (see PERCH).

PILCHARD, a European fish of the clupeoid family, resembling the herring in general appearance. The young fish is the most highly prized and is famous the world over as the French sardine (see SARDINE). The true pilchard is not found in American waters, but a similar fish is plentiful along the Pacific coast, and yet another in the West Indies. The young of the menhaden are in some sections colloquially termed "pilchards."

PILI-NUT (see the second color-page facing 346), a nut of the Philippines and other Pacific islands with a smooth, hard shell of varying light brown, generally triangular in form and tapering to both ends. The flesh in good specimens is of excellent quality. The uniformly reddish color of the nuts generally marketed is obtained by dyeing them—an undesirable and unnecessary practise.

PILOT BREAD, or Pilot Biscuit, other names for "ship biscuit," or HARD TACK (which see).

PIMENTO, the aromatic berry of the pimento-tree, popularly known in this country as ALLSPICE (which see).

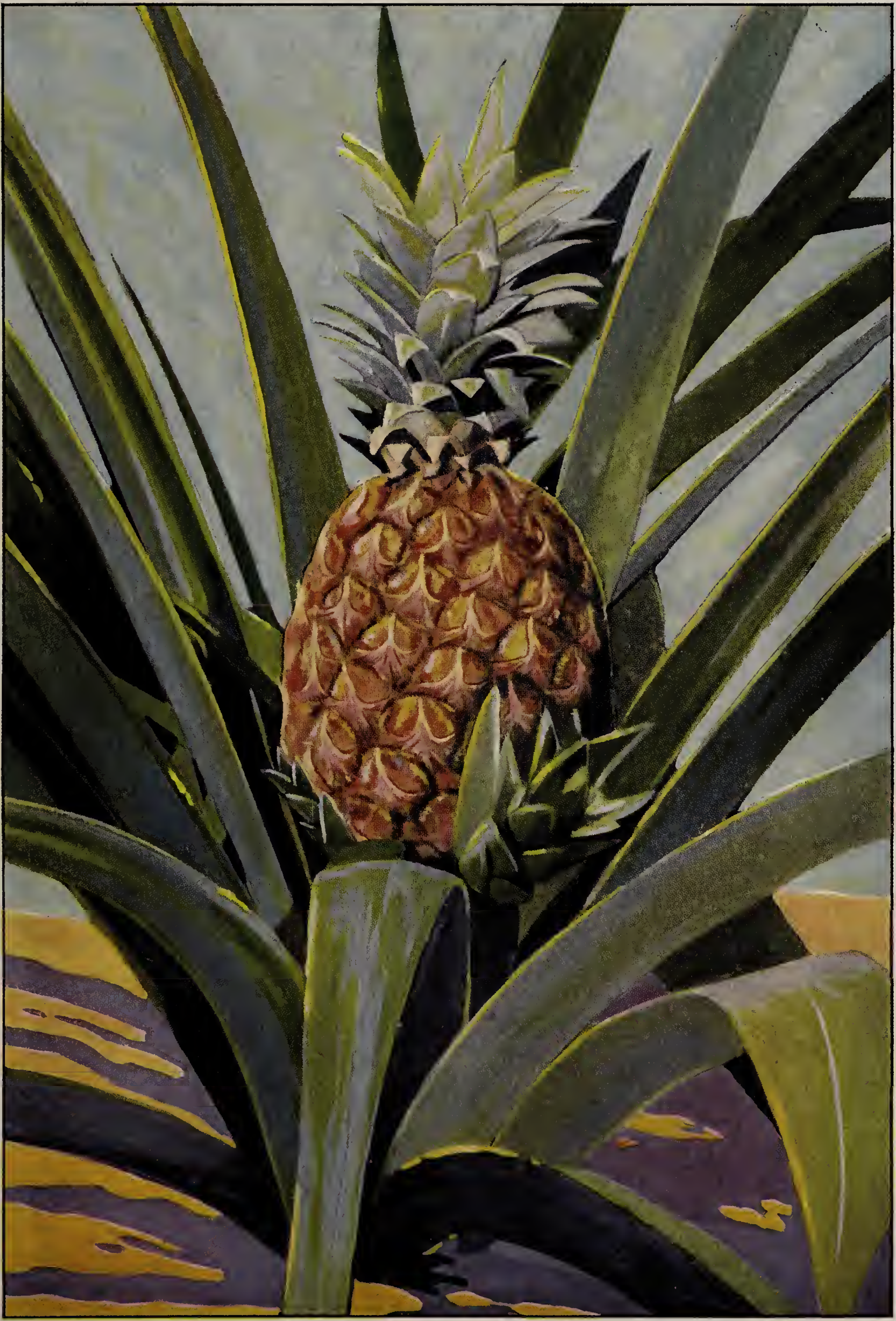
PIMIENTO, or "Pimento," or Pimienta, a large-fruited Spanish capsicum. See PAPRIKA and PEPPERS AS A VEGETABLE.

PINEAPPLE. The pineapple takes its name from a resemblance to the pine-cone but the title is misleading for it grows on a low, spreading plant. Its native home is tropical South America, thence long ago carried to every tropical and sub-tropical country. It is one of the most satisfactory of tropical crops—bearing freely, having few insect enemies, and being particular only in the matter of moisture—too much will quickly rot the roots and too little reduces both the size and juiciness of the fruit.

A new commercial pineapple plantation is generally set out with "suckers" (buds that have developed in the axils of the leaves of a mature plant) in parts where the fruit is marketed for consumption fresh, or with both suckers and "crowns" (the leafy parts surmounting the fruits) where the crop goes to the cannery.

The plants can also be raised from the shoots, or "slips," which grow directly beneath the fruit. These are, however, less desirable as they are considerably slower in development.

The new plants, if suckers or crowns, take from eighteen to twenty-two months to ripen their first fruits. When the pines are cut, the plants produce a second crop by the development of underground suckers, known as "rattoons," or (where these are lacking) by the growth of bud suckers left for the purpose. The same process may be continued for eight or nine years, but commercially the plants are seldom



A PINEAPPLE PLANT

(Reduced)

allowed to bear after the third time—in Hawaii, seldom after the second—as the fruit then begins to deteriorate.

The first sign of a fruit is the appearance of a tiny crown which develops slowly into the appearance of a miniature pineapple. Next come, while the "pine" is still small, a number of pretty little purplish-blue flowers, one in each "eye," these quickly passing to be succeeded by the closely packed individual "berries" which with their swollen bracts and axes, and central stem, form the whole multiple fruit, the mature pineapple itself. The flowers have but little odor, and even a field of fully ripened pines has little fragrance unless one happens to be bruised or injured.

In the West Indies, the chief eastern source of the fresh fruits, there is a well-recognized division into "field pines"—the little, hard, reddish ones which sell at low prices—and the fancy "garden pines," which bring considerably higher figures. The industry there is old, and in many parts is more or less cumbered with poor varieties and antiquated methods. Great advancement has, however, been made recently, especially in Cuba and Porto Rico.

Florida produces excellent pines, but her total possible crop is comparatively small, and local conditions of soil and temperature necessitate specially careful cultivation and protection.

The most popular types of the fine fruits are the medium-sized Red Spanish, Queen, and Sugar Loaf, and the large Porto Rico and Smooth Cayenne.

In buying for immediate consumption, select those which look yellowish on the smooth surface—though this is not conclusive proof of ripeness. If one of the lot proves unripe, set the remainder aside and hold them for a few days—they are not likely to spoil and will soon mellow. Ripening storage-room must be kept at an even temperature of about 65° to 70° Fahr. It is a good idea to wrap each fruit in thick paper when setting to ripen.

In preparing for the table, peel off the outer skin, take out the eyes with a patent remover, cut in slices, and core with a patent corer.

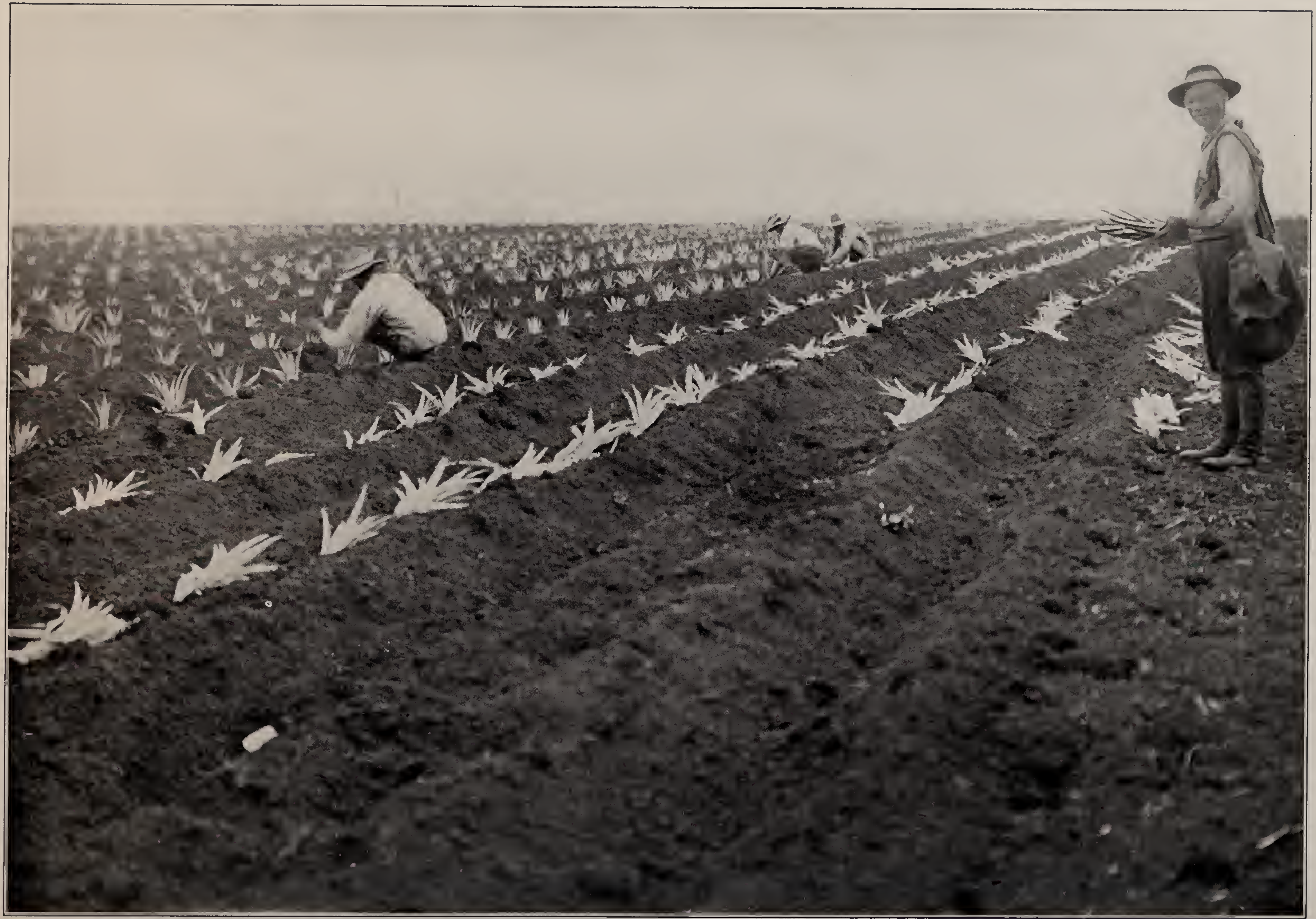
A still better method—which does not, however, give the even round slices of the preceding directions—is first to remove the outer covering and eyes as above, then stand the pine up on the table, insert a fork in the crown and—with another *silver* fork—pick away the fruit-flesh down to the core in small or large chunks as may be desired.

In either case, the result will be infinitely superior if the slices or pieces are packed in a glass fruit-jar, covered with sugar, and set in the refrigerator for at least twenty-four hours before serving.

The pineapple is credited with digestive properties and has other medicinal virtues, but it should not be eaten unless fully mature as the unripe juices are caustic and are liable to irritate the coating of the stomach.

Pineapple parings (together with any superfluous fruit) may be used for the making of pineapple vinegar—a particularly fine-flavored product. They should be put in a crock, covered with water, sweetened by the addition of sugar or sirup, and then permitted to ferment, being occasionally skimmed meanwhile. When done, the vinegar is strained off into demijohns or bottles.

Canned Pineapple. The bulk of the canned pineapple consumed here comes from Hawaii. The present industry in that country—it dates from only about 1899—has won its commanding position by the quantity of its output and the care



Brown Bros.

Setting out crowns for a new pineapple plantation exercised by growers to ensure an uniformly high grade and thus always to meet the expectations of both retailers and consumers.

Hawaiian growers have specialized on the Smooth Cayenne, and—both climate and soil conditions being very favorable—the fruits on maturity reach a weight of from six to eight pounds and are entirely devoid of the woody fibre so objectionable in poor pines.

Very few Hawaiian pineapples are exported raw, 95% being ripened on the plant and put up immediately after gathering in modern canneries on the plantations or at a nearby point. All the work is done by machinery, and the cans used are of a size to hold the best part of an average fruit, cored and cut into slices of regular size. An increasing number are canned whole, only the skin and eyes being removed.

The trimmings—which, in the case of pines running larger than the average, amount to a considerable proportion—are cut into cubes or grated and thus canned, to be used for cooking, soda-fountain purposes, etc. As the outer flesh is the sweetest and most highly flavored, this by-product is frequently the choicest output of the cannery. The cores go to confectioners—the demand often exceeding the supply, their firmness making them better adapted to coating than the more tender surrounding flesh. Yet another by-product of importance is the bottled juice—used both for beverages and for making sweet sauces, etc.

Additional reasons for the growing popularity of the high-grade canned product—whether from Hawaii, Florida, the West Indies, or other sources—are that it is impossible to transport fully ripe pineapples any considerable distance without damage, and that the fruits do not generally ripen to their full aromatic flavor if cut before maturity.

In buying canned pineapple from countries where there is no control of the output, merchants should be on their guard against plain-packed, or water-packed, varieties. Only those put up in sirup have the fine, sweet flavor that the customer expects—and of the sirup kind the best are those which consist of selected, naturally ripened fruits, i.e., pineapples packed where they are grown.

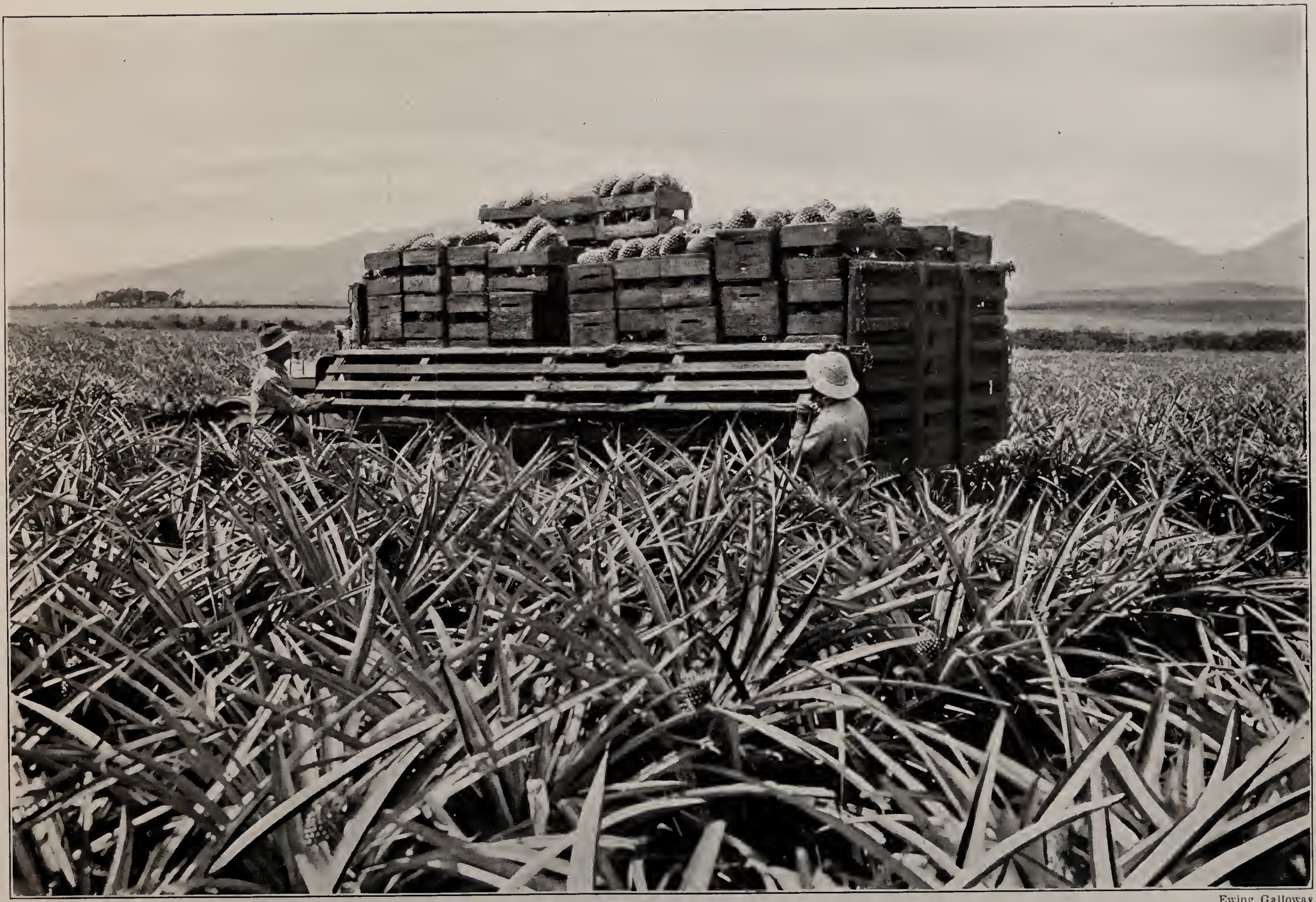
Singapore is also a very important factor in the pineapple-canning industry, but the greater part of its output goes to Europe.

PINEAPPLE CHEESE. See the color-page facing 92 and the article on CHEESE.

PINE-NUT, Indian Nut, Pignon, Pinon, Pignolia, the seed of the pine-tree, several varieties being used in confectionery, pastry-making, etc., and eaten raw—roasted and salted—in the same way as almonds. They are found in many styles and sizes, but are generally small—narrow, and from one-half to three-quarters of an inch in length. The cones are heated in order to spread the scales, the nuts being then easily dislodged. See the second color-page opposite 346.

Those imported from Italy and the south of France are principally from the tall Stone pine, *Pinus pinea,* and are marketed as "pignolias," or "pinolias," a corruption of the Italian name, *pinocchio.* In Mexico and the western states, the native pine-nuts, from the small *P. edulis,* and *P. cembroides* and other species (or sub-species), are known as "Indian nuts," or "pignons," or "pinons." The largest are those of the Araucarian pines of Brazil and Chile—they frequently attain a length of two inches.

The Spanish nut contains more protein but less fat than the American.



Ewing Galloway

Loading a motor-truck with pineapples for the cannery

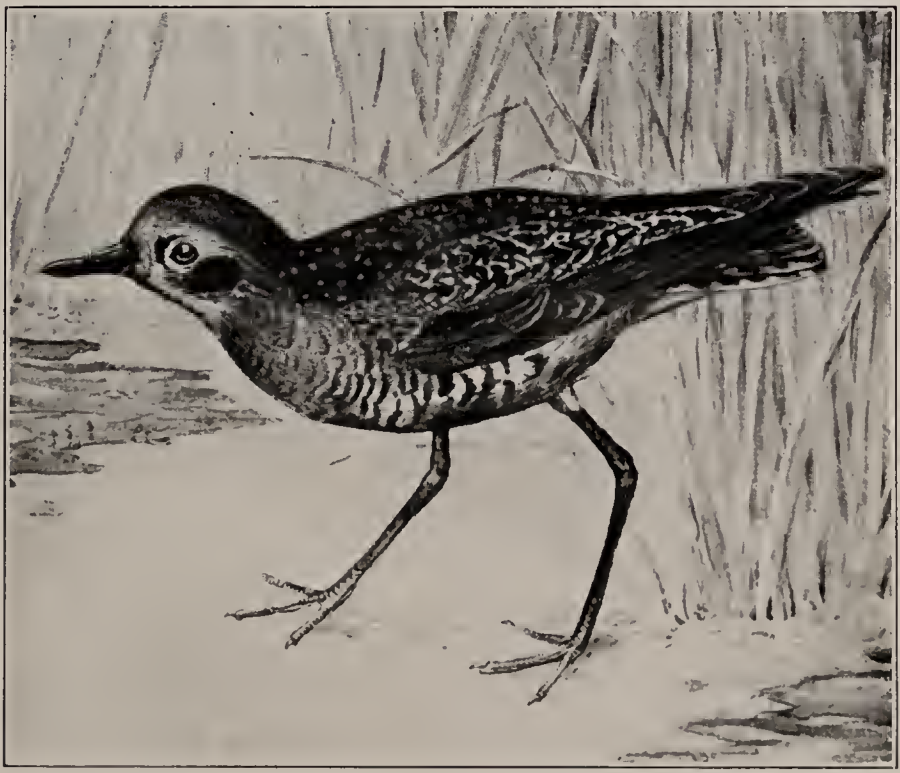
PINTAIL, a wild waterfowl popularly so named because of its long tail-feathers. See Ducks (*Wild*).

PISCICULTURE, the science of fish-husbandry, or Fish Culture (which see).

PISTACHIO-NUT (see the second color-page opposite 346), the kernel of the small, generally reddish, fruit of the pistachio-tree, native to western Asia, now cultivated in all Mediterranean countries, and latterly in California. The best imported are from Sicily. The nut is inclined to oval, with a smooth, thin, brittle inner-shell and light-green or creamy-yellow meat, very oily and of delicate flavor. Large quantities are used in the manufacture of confectionery and ice-cream, and eaten as a dessert nut.

PLAICE, a yellow-spotted flatfish of northern Europe, with thick, firm flesh of fair flavor. One weighing from six to eight pounds is rated as a large specimen, but the maximum weight is considerably greater. The "plaice" of the bill-of-fare is generally domestic Flounder (which see), the true fish being very seldom imported.

PLANTAIN, or Cooking Banana, a fruit of the same genus as the banana, and of the same general style—but larger (up to a foot, or considerably more, in length and a diameter of two to three or more inches), coarser, less sweet, and less agreeable in flavor when raw—which serves as a valuable food staple in various tropical countries, to a considerable extent taking the place of the grains and root vegetables of other latitudes. It is generally cut while still green and firm, and roasted, boiled, or baked, either whole or in slices, resembling then the potato in texture and being decidedly pleasing to the palate. It is also dried and ground into a rich, creamy meal which is used for making bread, cakes, and puddings, and for thickening soups, etc.



American golden plover

PLOVER, a title applied to a number of birds of the sub-family *Charadriinæ,* from some no bigger than a sparrow to the Grey plover, about the size of a woodcock. The most highly esteemed are the smaller Golden plovers, so called from their golden-speckled upper plumage, and especially distinguished by the great spread of their wings. The grey plover (with black and white upper plumage and no yellow spots) is also referred to as the "black-bellied plover," but this is a poor attempt at differentiation for the golden plover has more black on its under-parts than the grey plover has. In young birds the plumage markings are less well defined but a ready distinction is that the golden plover has only three toes—it develops no hind toe. The Ringed plover, with a white ring above its black breast and throat band, is again smaller than the golden. The Upland plover, or "papabotte"—of type between the true plover and the snipes—is the chief species of the *Bartramia* sandpipers. The Yellow-legged plovers—also known as the "greater yellowlegs" and the "lesser yellowlegs"—are sandpipers of the genus *Totanus,* found generally along the coast in winter and around inland waters during the summer.

The "plover's eggs" of the European epicure (black-spotted on an olive ground) are specifically those of the lapwing, or peewit, species, a pigeon-size bird of the *Vanellus.*

PLUCK, a popular term for the heart, liver, and lungs of the smaller animals, as calves and sheep.

PLUM, the fruit of many species of *Prunus* (the genus which includes also the almond, apricot, cherry, and peach). Those cultivated here are roughly divisible into (1) "European," (2) "Japanese" and their hybrids with American plums, and (3) native American.

The Pacific slope and the northeastern states grow chiefly the European, with the Japanese second in favor. In the Central West, and many parts of the South, American fruits are dominant, with hardy Russian varieties added in the colder regions of the North, and the Japanese in central and southern parts.

The European fruits (native to western Asia) include all the old-style plums and embrace a great diversity of quality, color, and size—the French prune, the big Yellow Egg, the purplish-red Lombard, the green-gages, the little damsons, etc. All of these have in California found conditions admirably suited to them and they are raised in enormous quantities. New York also is a heavy producer.

The Japanese plums—i.e., Chinese varieties that have reached us via Japan—are yellow or reddish, generally large and firm, and inclined to be pointed. They are less flavory than the European and the best American, but very showy, productive, and long-keeping.

The American fruits are chiefly cultures of the common wild plum, *P. americana,* found throughout the East and Central West, and are well adapted to regions where climatic conditions are too cold, or otherwise too severe, for the European and Japanese. The wild fruit is yellow or reddish-yellow, varying in size but usually small, and generally hard and bitter in the East, though very good eating in the West. Among the numerous cultivated varieties of northern orchards are the De Soto (roundish, yellowish-red, and about 1½ inches in diameter), and the Hawkeye, a little smaller, egg-shaped, and dull red.

Next in importance in number and fully equal in quality of fruit, are the cultivated varieties of the Canada plum, *P. nigra,* wild throughout the northeastern and central-northern states and Canadian territory to the north. The wild fruit is generally oblong and orange red. The orchard varieties include the deep red Aitkin and the dark carmine and yellow Cheney.

Of the numerous native plums growing chiefly in the Mid-Central and South, there are two species—the Hortulana (*P. hortulana*) and the Wild Goose (*P. Munsoniana*)—both of them red to yellowish and generally white-dotted—of which several named varieties are cultivated.

Other well-known, but almost exclusively wild, species are the Chickasaw or "mountain cherry," and the Sand (both of *P. angustifolia*) of the mid-central and southern states; and the Beach, or "shore" plum of the Atlantic coastline, its range extending south to Virginia.

The wild Chickasaw and Sand plums are cherry-like, with red or yellow and yellow-dotted skin, and soft, juicy, frequently subacid, flesh. Good specimens of the Chickasaw—especially the cultivated forms where obtainable—are preferred by many people as a dessert fruit to the sweeter European and Japanese plums.

The Beach plum is about one-half inch in diameter, flattened-roundish, and generally a deep dull purple—also red and yellow in some forms—and covered with a heavy bloom when ripe. The flesh is brittle and (usually) sweet and juicy, but the thick, tough skin is sometimes so acrid as to spoil the fruit for eating raw. It makes excellent preserves and jellies.

See also DAMSON, GREEN-GAGES, and PRUNES.

PLUMCOT, one of the Luther Burbank creations, based on crosses of Japanese plums and apricots. Continued experiments have resulted in a great diversity of types, with a wide range of size, color, etc.—some favoring their plum, others their apricot progenitors. Several of them are excellent alike in flavor, appearance, and shipping quality.

PLUM PUDDING. This palatable dish has been made the theme of many a story and many a song, and since it has been put up in canned form it has become more popular than ever. It is the most convenient dessert dish that the grocer can supply to the puzzled housewife who has to prepare for the coming guest. Large quantities are exported to England, thus supplying John Bull with his national dessert in improved style!

To be worthy of its traditions, plum pudding should be a rich, tender, fruitily-spicily-odorous blend of raisins, currants, citrus peels (citron, orange, and lemon), milk, suet, and spices—all of the best quality—with only just enough flour to hold the other ingredients together.

The earliest record of plum pudding is, curiously enough, in the memoirs of a Frenchman, the Chevalier d'Arvieux, who took a voyage on a British forty-ton warship in the year 1658. His comment, quoted in Southey's *Omniana,* was that it was *détestable.* The pudding itself—composed of biscuit crumbs or flour, lard, currants, salt, and pepper, tied up in a napkin, and cooked in bouillon —*n'est pas absolument mauvaise* ("is not absolutely bad"), but before service it was dusted over with old cheese, which gave it *une odeur insupportable.* Plum pudding had not, however, at that date achieved its later high rank as a Christmas dessert, its future place being filled by "plum porridge"—porridge containing prunes, currants, raisins, etc.—which (together with "minced pies"), then and for another hundred years or more, played an important part in Christmas festivities.

POI, a famous food of the Sandwich Islands (see TARO).

POKEWEED, a tall, bushy plant of heavy odor, native to a large stretch of North-American territory, especially northeast and north-central. On maturity it exceeds ten feet in height. Its young, asparagus-like shoots equal ordinary asparagus in flavor and tenderness—and the plant was formerly cultivated to obtain them. The root and seeds should never be eaten in any form, as they may give acutely poisonous results.

POLENTA, a pudding popular among all classes in Italy. It was formerly made of chestnut meal but is now generally of semolina (farina) or cornmeal, except during the autumn months when chestnuts are plentiful. The meal is mixed with milk or water, boiled to the proper consistence, and poured into a dish to jellify. When firm and thick it is seasoned by grating cheese over it or by adding various condiments, etc., and is then cut in slices and thus eaten, or is further prepared by a quick frying in oil or other fat.

POLLACK, or Pollock, or Coalfish, a member of the codfish family. It is considered inferior to the cod but is largely consumed both fresh and salted. Big specimens will weigh twenty-five pounds and upward, and show a length of three feet or more.

Pollack

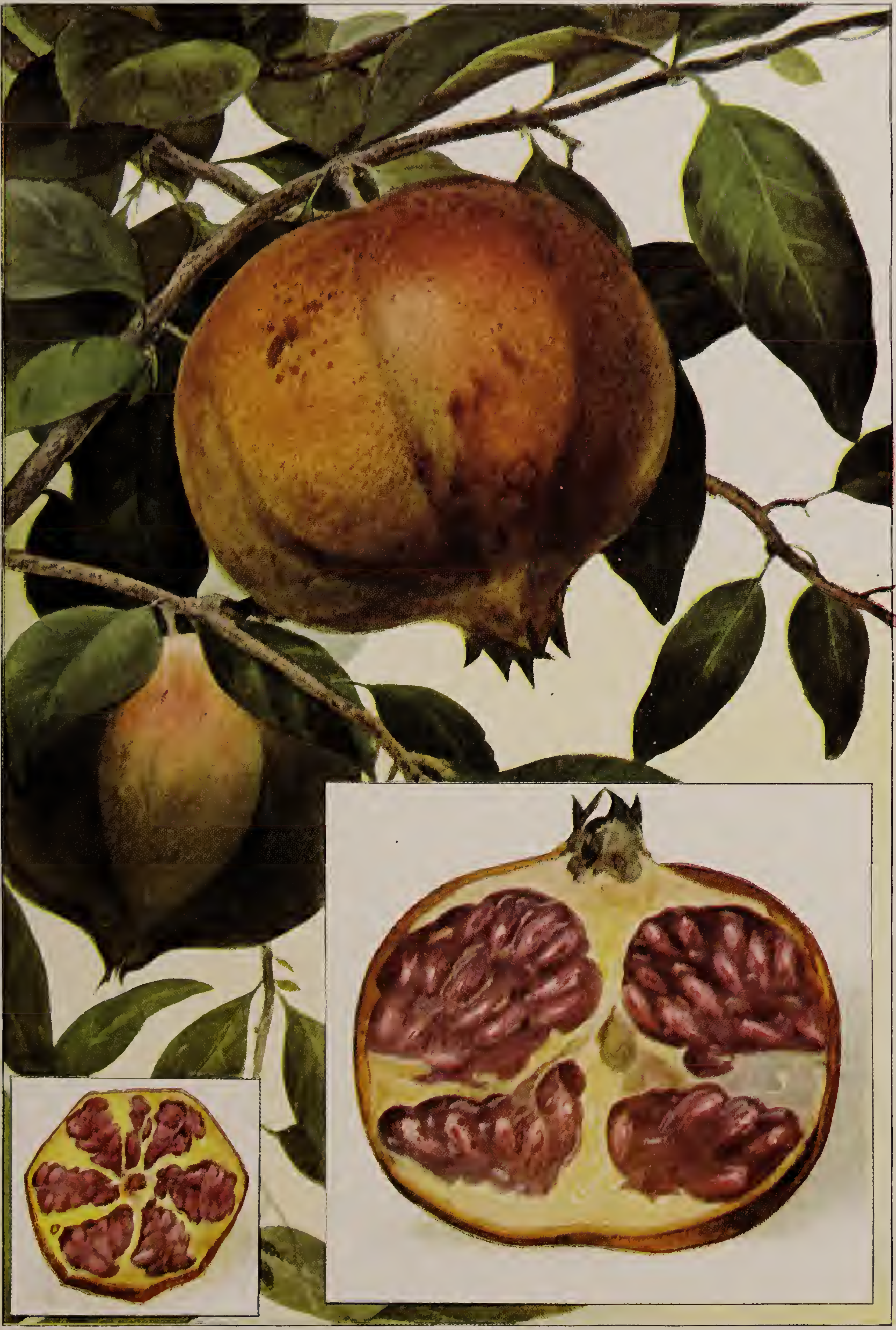
The Alaska pollack, very plentiful in Bering Sea and southward, is closely allied and is of about the same size and style.

POMEGRANATE (see the color-page opposite), a very ornamental tree, native to southern Asia. It was brought into Europe at an early date, and is now cultivated in all sub-tropical countries. It thrives and produces prolifically in the interior valleys of California and Arizona, and elsewhere in the West and South, but its fruit is not generally popular among us despite its substantial approval among Spanish-speaking people everywhere and its long historical record, which runs back, together with the fig and vine and olive, into remote antiquity. It will not be forgotten that Solomon sang of "an orchard of pomegranates."

The fruit—which follows a showy, orange-red, waxy flower—is commonly about the size of a large orange—up, in large specimens, to five inches in diameter—with a thick, leathery rind of any color from light yellow to deep purplish red, but usually pinkish or reddish or brownish yellow. The interior consists of a delicate sweet or subacid pink or red pulp enclosing a number of white or purplish-white seeds, giving the appearance of segmented masses of reddish berries. It is cooling to the palate, and therefore especially pleasing in warm climates, and it lends itself readily to the preparation of summer beverages. Scented with rose water, the juice forms one of the most delicious sherbets of the Levant.

Pomegranate sirup is generally known as "grenadine sirup"—an adaptation of *grenade,* the French name of the fruit.

The seeds possess medicinal value but they are not pleasant in flavor, so if for any purpose they are removed from the pulp by pressing through a sieve (or otherwise) care must be exercised to avoid crushing them into the fruit.



POMEGRANATE
Slightly Reduced

POMEGRANATE-MELON, one of several titles of the Mango-melon (which see).

POMELO, one of the original titles of the Grapefruit (which see).

POMPANO, (see the color-page facing 294), one of the most delicious of southern fishes, especially noted for its fine, nutty flavor. It is shaped like the sunfish, and is bluish above and silvery, or perhaps a little golden, on the under-parts, with very small, grey scales. It generally weighs from one to five pounds—the maximum being about eight pounds, with a length of eighteen inches or thereabouts. A few pompanos are caught each season off the Long Island and New Jersey coasts.

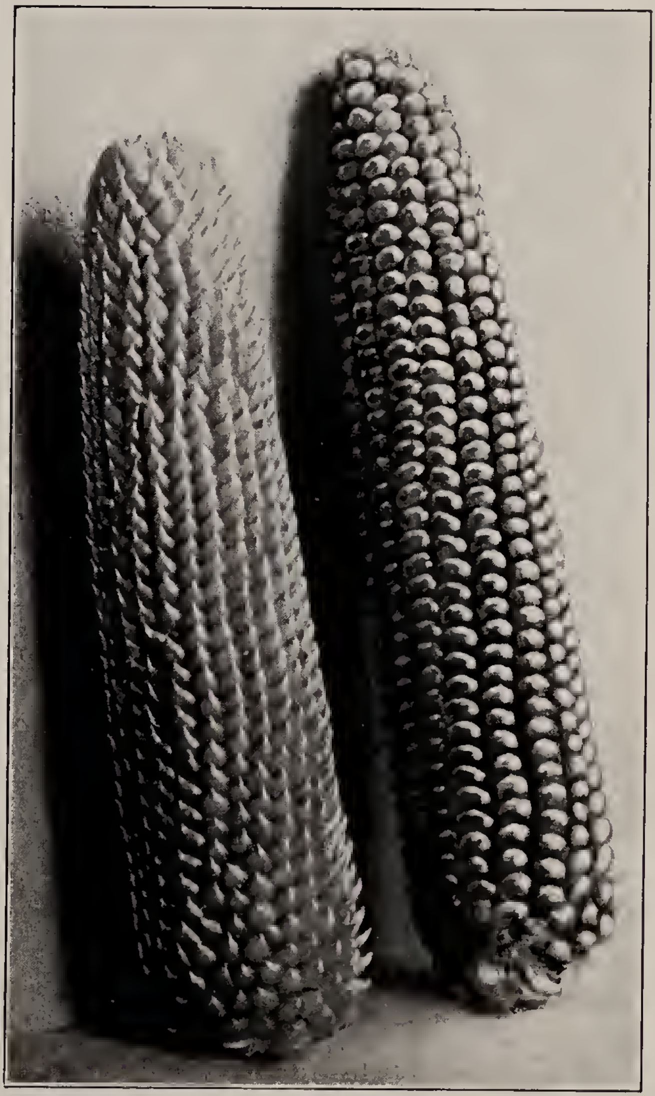
The California "pompano" is a Butterfish (which see).

POPCORN, a name applied to several varieties of Indian corn—chiefly white, with small ears and small, hard grains, with or without sharp points—which contain an especially large proportion of endosperm. If the popcorn is a true variety, sound and properly dried, and the fire is hot, the heat "pops" the corn—i. e., breaks the coat of the grain—by expansion of its enclosed air and moisture—the sudden release of the puffed white interior turning it inside out, the popped result exceeding sometimes by twenty times the volume of the original unpopped grain.

Iowa is the centre of the popcorn-growing industry. Cultivation and harvesting are generally identical with that for ordinary maize except that special attention is given to the ventilation of the cribs during drying in order to insure uniformity, as on the thoroughness of the process depends largely the "popping" quality.

A new variety is a very small but very expansive seed produced by crossing sweet corn with a grain-sorghum.

In addition to its consumption salted or sweetened in rolls and packages, popcorn, either whole or ground, is sometimes eaten as a breakfast dish with milk and sugar.

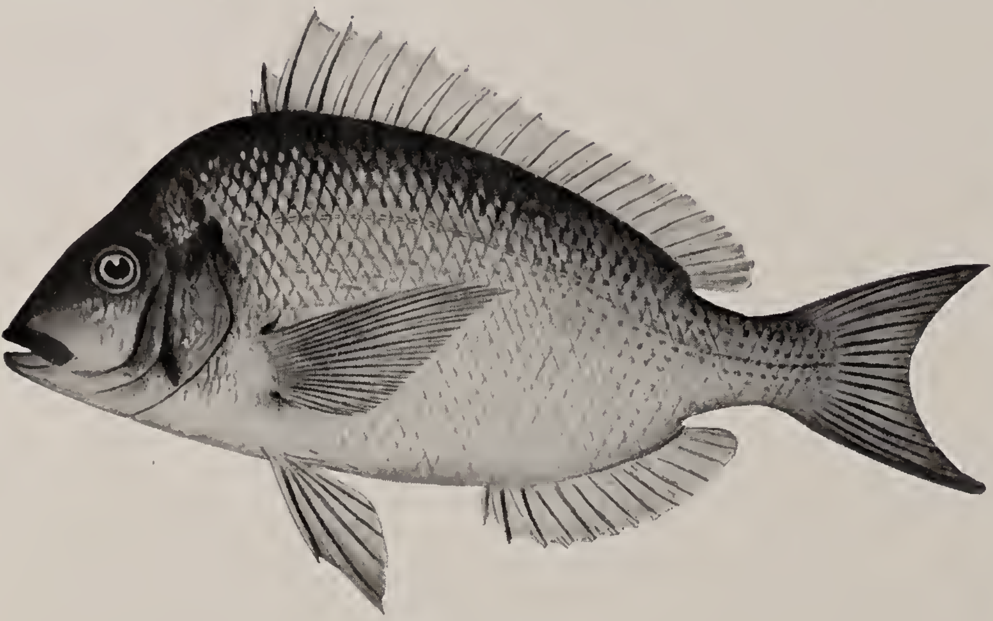


White—POPCORN—Yellow

POPPY-SEED, commonly the seed of opiuressing poppy-seeds. Fine cold-drawn oil is marketed to some extent for use on or in bread, generally of Vienna shape, and rolls such as the Viennese *Salzstangen*. It contains about 50% oil and 25% protein and pectins.

Poppy Oil is obtained by crushing and pressing poppy-seeds. Fine cold-drawn oil is very pale yellow, almost odorless, and of pleasing flavor. It is popular for table use in parts of Europe, and is also much employed in oil-painting. Inferior grades are consumed in soap manufacture and various other industries.

PORGY, a general name for a large family of good food-fishes. The typical genus (*Calamus*) is especially abundant in the West Indies and Mediterranean, and fairly common about the Florida Keys. All its members are small except the "jolt-head," which may attain two feet in length and ten pounds in weight.


Jolt-head porgy

The ordinary domestic "porgies" are of a different genus, the "scups" (*Stenotomus*), represented northward chiefly by the Common scup—brown above, rather silvery below, and shaped a good deal like the sheepshead--and southward by the very similar southern "porgy." The former is known also as porgy, paugy, scuppaug, and fairmaid.

PORK. The title "pork" covers all the flesh, fresh or cured, of pigs, or swine, but in ordinary use it is not applied to the flesh when smoked, as ham and bacon. This is another example of the curious changes that have occurred in the English language, for "bacon" was formerly applied to all meat from the pig, of any part and whether fresh, salted, or smoked!

A general division of the carcass is shown in the accompanying diagram from a bulletin published by the United States Department of Agriculture.

The back-cut designated is almost clear fat and is used for salting and pickling, or "corning." The middle-cut may be converted into bacon or may be salted—it is sometimes termed "lean ends" salt pork. The belly is generally used for bacon. From the ribs and loin (beneath the back-cut) come "spare ribs," eaten both fresh and corned, chops, and "roasting pieces." The tenderloin proper is a comparatively

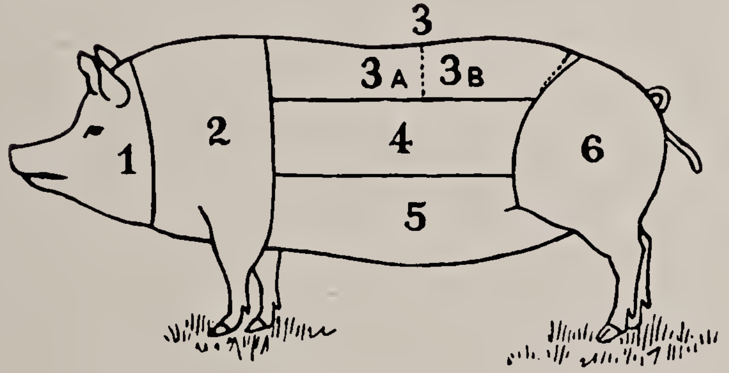
Pork on the hoof

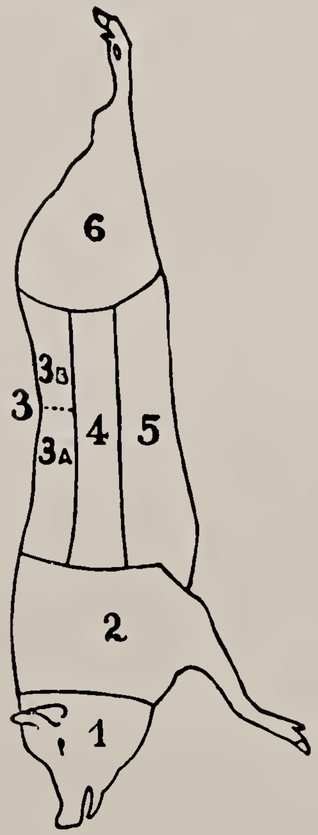
lean and very small strip of meat lying under the bones of the loin and usually weighing a fraction of a pound. A ''smoked tenderloin,'' weighing from 1½ to 3 pounds, is the boned neck.

The hams and shoulders are generally cured, but are also sold fresh as ''pork steak'' and ''fresh pork,'' etc. The shoulder is in the South frequently sold entire, dry-salted—being then known to many in the trade as the ''English shoulder.'' Throughout other parts of the country it is commonly cut into two parts—the ''picnic,'' or ''smoked,'' shoulder (formerly styled ''picnic'' or ''California'' ham) and the ''boneless butt'' or ''regular butt.'' The ''picnic shoulder,'' plain cured or cured and smoked, is very popular because of its conveniently small size.

The fat trimmed off the hams and shoulders may be rendered for lard or it may go, with all other trimmings, into the manufacture of sausages.

The leaf fat which lies around the kidneys furnishes the finest quality lard.





Pork Cuts

1 Head
2 Shoulder
3 Back Cut
  3a Ribs (beneath the Back Cut)
  3b Loin '' '' '' ''
4 Middle Cut
5 Belly
6 Ham

''Larding pork'' is very fat pork, from the loin and ribs, cured and preserved with ordinary cooking salt.

The head, feet, and tails are eaten both fresh and pickled.

The annual consumption of pork is enormous, attributable partly to its high calorie value (see Food Values), and partly to the fact that it lends itself more acceptably to ''curing'' than any other form of animal food. It is not, though, an especially desirable food for delicate stomachs as the gastric response to it is considerably slower than to beef and similar meats.

The United States is a long way in the lead as a pork-producer, consuming a high per capita amount at home and shipping vast quantities to Europe and other parts of the world, both for private consumption and for the commissary departments of armies and navies. Ireland is the next largest producer of cured pork.

Pork should be smooth and cool to the touch. If it feels clammy and looks flabby, it is old and may not be fresh. If it has many enlarged glands or kernels in the fat or fine black spots in the belly strips, it may generally be regarded as from a diseased animal, and therefore unfit for human consumption.

It should always be thoroughly cooked before eating (see TRICHINAE).

See also articles on BACON, HAM, SAUSAGES, and SMOKED MEATS.

PORPOISE, a title correctly applied only to the genus *Phocæna.* In popular usage it has been extended to a large number of the smaller members of the whale order, especially to the many kinds of dolphins.

The common porpoise is generally about five feet in length, with a smooth, shiny, hairless skin, dark grey or nearly black on the upper part, shading to white on the belly. It usually travels in small companies. The Japanese and Indian Ocean species resembles the common species in conformation but is smaller and darker, and lacks the dorsal fin.

Very few Americans have tasted porpoise flesh but it was formerly relished in Europe and is still highly esteemed in many other parts of the world. Its characteristic oily flavor can be largely avoided by stripping from the meat proper the tissue which unites it to the thick layer of blubber.

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Butchering a porpoise, Japan

PORRIDGE, the meal of any kind of grain prepared by adding water or milk and boiling until a pulp is formed (see the general article on CEREALS). A second, less common application of the title is to soups and stews of vegetables (alone or with meat).

PORTERHOUSE CUT, that part of the loin cut through the sirloin strip and the thick end of the tenderloin (see the article on BEEF and the second color-page facing 36). Its use and title are credited to a saloon, or "porter-house," situated near the old Fly Market, New York, during the early years of the nineteenth century. Its proprietor, discerning the excellence of steaks cut from the thick end of the sirloin, then used only for roasting, refused to buy any other from his butcher. The fame of the "porterhouse steak" rapidly spread and the term is now firmly established in the language of meats.

Another explanation traces the term to a roadhouse known as "Porter's," located at Cambridge, Mass., during the middle of the last century, which won high favor for the steaks it served from the cut now known as "porterhouse."

POSSET, hot milk curdled with wine or any other slightly acidulous liquor. It is usually sweetened with sugar or molasses, and sometimes thickened with flour or bread.

POSSUM, a local abbreviation of OPOSSUM (which see).

POTATO. The potato-plant is native to the elevated valleys of western South America, Mexico, and southern Colorado, and had long furnished a considerable part of the inhabitants' food supply when the Spaniards came upon them after the discovery of the western hemisphere. The Spaniards also (probably) first introduced it to Europe, carrying it from Peru to Spain, whence it passed through Italy and Belgium to England. Priority of European introduction has been claimed for an English voyager—for Sir John Hawkins in 1563—but it is now generally believed that it was the sweet-potato that he brought over. From a food standpoint, these dates and credits are unimportant, for two centuries were to elapse before the potato came into general cultivation, chiefly because of deep-seated prejudices against new articles of diet, but also partly because of the early methods of preparation—roasting and steeping in wine, baking with beef marrow and various spices, and sweet-preserving in various styles! In the last 130 or 140 years it has, however, achieved extraordinarily wide use and popularity as a vegetable and as a cereal substitute.

It is, indeed, difficult to overestimate the importance of the potato—especially in Europe, where it has played a prominent part in the improvement of agricultural conditions which has prevented the recurrence of the periodic famines of former ages. A lamentable exception that will occur to everyone was the blight destruction in Ireland in 1846 and 1847, and the resultant famine which devastated the country. The great number of deaths from want and disease constitute a fearful commentary on the peril of relying on a single food crop.

Germany heads the list as the greatest potato-growing country in the world, with a normal production of about two billion bushels a year—a per capita of more than thirty bushels. The United States' per capita is much less, only about three bushels, but even this, because of our nationally low potato return to the acre—less than 100 bushels against a possible 200 to 400 (or even double or treble those figures)—represents the produce of more than 300 acres for every 10,000 of population. Furthermore, a considerable percentage of the German harvest is devoted to the production of starch for industrial purposes, whereas in this country only very small or misshaped or very large potatoes are ordinarily thus used, unless the market price for those of normal sizes is exceptionally low.

The potato is a tuber that forms at the end of an underground stem—the tubers increased both in number and in size by selection and cultivation. Four to six, uniform in size, and with a total weight of about two pounds, is considered a good average hill on farms here. Those grown in Germany for starch are much larger. The plant itself is from 1½ to three feet high.

The varieties under cultivation are constantly changing. A certain type will for several years lead the market as the most desirable product, only to gradually deteriorate in quality and eventually to be supplanted by another variety which will run a similar course of mediocrity, success, and final failure. In this manner, many kinds which were popular years ago have become almost extinct.

The following are simple and generally reliable tests for ascertaining the quality of mature potatoes without cooking:

Choose a sound potato at random from the lot, paying no attention to its exterior appearance, and press it in the hand. It should feel firm. Next cut it into two pieces and examine the exposed surfaces. If they show so much water, or juice, that a comparatively slight pressure causes it to fall off in drops, or if the core is large and soft, you may be sure the potato will be soggy when it is boiled. There must be a considerable amount of water, but not an excess. Then note the color—it should be yellowish-white. If a deep yellow, the potato is not likely to cook well. Next rub the pieces together—a white froth, caused by the starch content, will appear around the edges and upon the two surfaces. The more starch, and consequently the more froth, the better the potato; the less there is, the poorer it will cook. The strength of the starchy element can further be tested by loosing the hold upon one piece—if it still clings to the other, it is a very good sign. These are the experiments usually made by experts, and they are generally willing to buy potatoes which successfully stand the tests.

An exception to the color test is necessary in the case of some imported potatoes—which may be very yellow yet of high quality. Also, juiciness is not a defect in young potatoes because their juice holds more protein in solution and cooks to waxiness.

Too much emphasis cannot be laid on the fact that the green color in potatoes which have grown too near the surface of the earth and have been affected by the sun, is an indication of the presence of an alkaloid poison called solanin. It renders them unfit for food. The same effect in a minor degree is produced by sprouting. If such potatoes are consumed, they should be sliced and placed in cold water an hour or two before cooking.

It is seldom, under ordinary conditions, that anyone has the fancy to eat a raw potato—and that is well, for the average digestion would not, even under the best conditions, be able to assimilate much more than half of its food value—but if it be so eaten, it should first be peeled, for the uncooked skin of even a sound potato contains a little solanin.

To keep potatoes in good condition it is essential that they should be stored in a dark, cool, well-ventilated place. The temperature should not be above 40° Fahr., nor below 36°. Excessive dampness should be avoided, but extreme dryness is almost equally bad, for it has a tendency to shrivel them. When the latter result is noticed, they may be packed and covered with sand, the latter being dampened occasionally. A sprinkle of lime over any that are disposed to rot, will act as a deterrent.

Reference has been already made to the importance of potatoes in the food supply of modern nations. It should always be remembered that, eaten alone, they are not by any means a satisfactory human diet on account of their overwhelming proportion of starch—they consist essentially of starch and water. They should always be accompanied by other foods to supply the comparative lack of protein (see FOOD VALUES). This lack has, apparently by intuition, always been supplied in those countries where they have been made the chief staple—the Irish, for example, consume quantities of milk; and the Scotch and Germans, cheese and allied products. In England and America the large per capita consumption of meat has supplied the greater part of the protein required.

The vitamin content is good, the presence of vitamin C giving the potato merit as an antiscorbutic if boiled only for a short time. Its efficacy is most marked when raw and becomes doubtful after long boiling or baking.

To retain their nutritive qualities in the highest degree, potatoes should be cooked in their skins—so prepared, they are nearly twice as rich in potash salts as those peeled before cooking. The skins are easily removed before sending them to the table. An exception is made for new potatoes, which should have their loose outer skins rubbed off with a cloth or stiff brush before cooking because of their lia-

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Harvesting potatoes, New Jersey

bility to a considerable solanin content, and for very old ones—they should be peeled as they may have developed a bitter flavor. Steaming is better than boiling for peeled potatoes. Where it is not practical, immersion should be in boiling—not cold—water.

A second and very important objection to peeling potatoes except when necessary is that (as usually performed) a considerable percentage of the flesh immediately below the skin is cut away with the skin, and this particular part is the most valuable—it contains a higher percentage of mineral matter, soluble carbohydrates, and soluble nitrogenous matter than other portions. For this reason, also, the smooth, well shaped potato is much more economical than the irregularly formed one with deep eyes.

The first preparation for cooking should include the removal with a knife of all bruised or damaged parts, worm-holes, etc., and the careful cleaning of all dirt out of the "eyes" and from the rough parts of the skins by means of a brush and water, followed by rinsing in clean water and draining in a colander. If at all dry or shriveled, they may be advantageously left to soak for three or four hours in clean, cold water before cooking.

The cooking duly performed, one or two simple precautions are necessary. If boiling has been the process, followed by peeling for service, the potatoes should never be held in a covered dish—as, thus contained, they are liable to become sodden. The best method is to serve them in an open dish with a napkin over them—the napkin both retains the heat and absorbs the moisture. If held in their skins after boiling, it is good policy to pare the ends, or to strip the peel off around their middles, in order to permit some of their contained steam to escape. For the same purpose, the skins of baked potatoes should be pricked or broken when they come from the oven.

In the United States, the mealy potato is the type generally preferred for service as a separate vegetable—boiled, baked, etc.—and, consequently, varieties high in starch are necessary and a condition of fresh maturity. In Europe, "waxy" tubers are better liked—and varieties with a larger protein proportion are therefore selected. Waxy potatoes are—both in texture and flavor—the better for salads and garnishes (no matter on which side of the Atlantic they may be prepared)—hence the use here of imported potatoes for such purposes. When the latter are not obtainable, their place may be fairly well filled by young potatoes of the ordinary starchy type—the proportion of protein, sugars, and flavoring acids being higher in the young, or "new," potato than at maturity.

In Paris and other parts of northern France, fried potatoes (the original "French fried potatoes") are cooked and sold by street peddlers much as peanuts are here.

The "Canada potato" is the JERUSALEM ARTICHOKE; the "Chinese potato" is the YAM; the "Indian potato" may be the tuber of the sunflower or of the "wild bean" (see GROUNDNUT) or of various other plants; the "Spanish potato" is the SWEET-POTATO.

POTATO-APPLE, the yellowish or purplish fruit, or seed-ball, of the potato-plant, about the size of an average gooseberry. Formerly a common sight, it has become rare within the memory of the present generation. The seeds are small and one ball may contain 1 to 300.

POTATO CHIPS, or Saratoga Chips, very thin shavings of peeled potatoes, cut with a machine, steeped in ice-water to draw out the starch, and fried in boiling lard. With proper care they remain fresh for a long time. They are retailed both in bulk and cartons and have within the last few years become a free-selling grocery article. For use, it is only necessary to heat in the oven, or in a pan.

The title of "Saratoga chips" is attributed to their first introduction by a colored chef at Morris Lake, Saratoga, N. Y.

POTATO-FLOUR, or Potato-starch, the tubers ground to a pulp and freed of fibre by water-washings. It consists chiefly of starch, but also contains some protein. Large quantities are consumed in Europe, mixed with wheat or rye flour in the making of bread, in the preparation of soups, etc. It is also employed to some extent in this country by sausage-makers, bakers, confectioners, and cooks, and for various commercial purposes. It has been very largely crowded out of the American household by cornstarch, but it is better for the thickening of gravies as it does not carry a raw flavor even with very hurried preparation.

It is interesting to note that flour made from frozen potatoes is especially delicate in flavor because of the check to the activity of the cell protoplasms and the consequent accumulation of enzyme-converted sugar.

POTATO-SIRUP, in Europe an important commercial product, obtained by imperfect hydrolization of potato-starch. It corresponds to our Corn-sirup (which see) obtained from maize starch. *Potato-sugar,* similarly, corresponds to Corn-sugar.

POTTED and "DEVILED" MEATS, meats minced to the consistence of paste and seasoned, put up in cans and jars. The plain "potted" are mildly seasoned. The "deviled" are made very hot by a greater proportion of pepper and other spices. The most popular are those prepared from ham, chicken, turkey, tongue, and beef, and various combinations such as ham and chicken, and ham and tongue. Others which find favor but which are in less demand are of anchovy, herring, rabbit, etc. A small proportion of pork is generally included in the beef paste, and of both pork and beef in the turkey and chicken.

Potted and deviled meats are especially suitable for sandwiches and are very serviceable for buffet lunches, camping parties, picnics, and similar occasions.

POULTRY. Under this title come all domesticated birds bred and raised for use as human food. The most common are chickens, ducks, turkeys, geese, pigeons, and guinea-fowls. Other birds occasionally domesticated for the same purpose are pea-fowl (peacocks), quail, pheasants, and swans. Wild ducks and wild turkeys come under "game-birds" instead of "poultry." It is estimated that more than 300,000,000 poultry birds are consumed annually in the United States alone.

The chicken, turkey, guinea-fowl, partridge, pheasant, and quail are distinguished by the flesh of the breast and wings being lighter in color than that of other parts of the body. Ducks, geese, and swans (as also grouse) are "dark meat" birds. Pigeons belong midway between the two classes, the flesh on the breast being only slightly lighter.

Good general rules for the selection of dressed poultry are to see that the eyes are bright and full; the feet, soft, moist, and limber; the body plump and moderately firm; and the skin of clear color—a yellow tint being best liked in this country—and free from bruises or stains. With the approach of staleness, the eyes shrink and the feet dry and harden.

The age can be determined with fair accuracy by (1) the *lower tip of the breastbone,* which should in a very young bird be as flexible as the human ear, becoming brittle at a year or so and hard and tough when older; (2) the *feet,* which are soft and smooth in young, and hard and rough in old birds; and (3) the *claws,* which are short and sharp in the young, and larger and blunter in the older.

Poultry should always be washed before using, the best method being to use a soft brush and warm water in which a little baking-soda has been dissolved.

Cold-storage poultry should never be allowed to remain in a warm room before cooking. It should be kept at a low temperature until desired for use.

In India it is customary in many parts to skin fowls without plucking the feathers, and country residents who find very troublesome the task of plucking, may avoid it in this way. The method seems radical, but for the majority of culinary purposes, especially for fricassee, the result is entirely satisfactory. The skinning is easily performed by slitting the skin from the beak down the breast to the tail and, laterally, at each wing and leg.

In Italian markets it is a general thing to dismember a certain number of fowls so that customers may purchase separate parts in any quantity needed. Various trays or other receptacles are displayed—one full of breasts, another of wings, a third of legs, and a fourth—perhaps a fifth and sixth—of livers and other "giblets." This method offers many advantages. A housewife with a lean purse can buy a few cents' worth of the cheaper parts, instead of being compelled to purchase an entire bird or deny herself the pleasure of having chicken on the table. Others, to whom the matter of price is not so important, also find it both convenient and economical, as they can purchase any desired quantity of the choicer parts without having to provide a way to dispose of the less desirable portions. A popular dish in well-to-do houses is, for example, a pan of chicken breasts, garnished perhaps with pieces of ham or sausage—to serve such a dish under general American market conditions would probably necessitate purchasing a half-dozen or more whole chickens.

The directions under MEAT for its proper keeping, apply equally to poultry of all kinds. See also the articles on CHICKEN, DUCKS, etc.

PRAIRIE-CHICKEN, Prairie-hen. See GROUSE.

PRALINES, a term formerly applied only to almond candy, especially to confections of burnt almonds, but now employed for any mixture of nut kernels and sugar.

In the South, the word is used mainly in connection with sugared coconut or pecan meats—particularly the latter, a candy which may be described as native to Louisiana. Its manufacture was for generations carried on chiefly by the descendants of the old Louisiana Indians whose blood has been intermingled with that of French negroes.

Coconut pralines are made with white sugar and may be either white or colored pink. Pecan pralines are brown from the brown sugar used.

The true southern pralines are never made in large quantities, as to be fully enjoyed they should be eaten before the sugar dries out and the mixture loses its aromatic flavor.

PRAWNS, small, salt-water crustaceans, chiefly of the *Penæs,* widely marketed, especially in the East, as "SHRIMPS" (which see) to which they are very nearly akin. When taken from the water they are dark-whitish in color, but they are generally boiled before they reach the merchant and in that condition are pink or red. Fresh prawns, shipped both raw and boiled, are in season from September to March—they are scarce in the summer. The main consumption is of the canned, principally of those caught and canned in the South. The tails are the only portion ordinarily eaten, but the heads may be pounded and used for flavoring soups and sauces. See the color-page opposite 288.

"PREPARED" FOODS, for invalids and children, are variously composed. The majority of them are essentially farinaceous—their bases being the flour of wheat, corn, rice, barley, lentils, etc., variously flavored and sweetened and frequently malted or partly pre-digested—but some contain a considerable percentage of dried milk, and exceptional types contain dried eggs also.

PRESERVES, a term frequently applied indiscriminately to any kind of fruit preserved by any means and for any use. For purposes of classification, it is better applied exclusively to fruits (such as peaches and pears) put up in liquids and retaining, to a considerable extent, their original shapes. The most widely used "preserved" fruits are those generally known as "canned fruits"—fruits preserved by sterilization and hermetical sealing, with or without the addition of sugar (see CANNED GOODS). The title "jam" is, similarly, best applied to fruits or fruit pulps cooked without any attempt to retain the original shape of the fruit; and "jelly" to the cooked fruit juices, the fibrous part of the pulp being removed. Candied and "crystallized" fruits are those boiled in sugar to saturation. See also JAM, JELLY, CANDIED FRUIT, and DRIED AND EVAPORATED AND DEHYDRATED FOODS.

PRETZELS, formerly called "bretzels," hard, brittle twists of dough, shaped into a knot-like or letter B form, dipped in hot lye, salted, and baked hard. They are common in Germany, and among Germans in this country, as an adjunct to beer.

PRICKLY PEAR, a name popularly applied to the edible fruits of several species of the *Opuntia* genus of cacti, native to America, now represented over a great stretch of territory in every part of the world. They vary largely in size, economic value, and appearance—from the small red barberry-fig of the little *vulgaris* species, which is hardy as far north as Massachusetts, to the tree-like plants of sub-tropical and tropical regions. They have no economic value in

"Prickly Pears"

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Between hedges of Prickly Pears, Palestine the North, but they are of large importance in the southwestern United States, Mexico, and elsewhere, for their fruits, as hedge-plants, and (in selected, nearly spineless varieties) as cattle-food.

The Prickly Pear of the South is found in red, yellow, purple, and several other colors. It varies from pear-shape to round, and from an ounce to a pound or more in weight—the most common types ranging from one to three inches in diameter. The skin is, in most kinds, marked by bunches of the small spicules, or spines, which are responsible for the title of the fruit. As a rule, the best are those with the thinnest skins and fewest spicules.

The most important species are the *ficus-indica* and the *tuna,* which may be described as fleshy, shrub-like or tree-like plants, often of considerable height, with wide, flattened, jointed, succulent branches. In Mexico and Sicily their fruits constitute a large part of the diet of entire communities during the main season of productiveness. That of the ficus-indica is generally oblong or oval, 1½ to three inches in diameter, with yellowish skin and pink or reddish pulp. That of the tuna is typically pear-shaped or roundish, purple, and from one to 1½ inches in maximum diameter. There are numerous varieties of both species and many hybrids.

The ficus-indica fruits present fewer—and sometimes no—spicules, and average larger, but the two varieties which are most highly esteemed—the purplish red Cardona and the Amarilla, or "yellow tuna," are, nevertheless, of the tuna species.

The fruit is eaten raw, plain or in salads, etc., and preserved and pickled with lemons or other fruits. The flesh is a juicy pulp enclosing a number of rather large seeds. The flavor is usually weak but it is distinctly refreshing, and the food value, which includes a sugar percentage of 10 to 15%, is as high as that of most fruits of popular consumption. In the Southwest the purple tunas are frequently employed to color jellies.

To prepare the raw fruit for the table, the most convenient method is to cut a slice off each end and slit the skin lengthways—the skin is then easily removed whole. The pulp-seeds are sufficiently large to be objectionable to a good many Americans—who, consequently, prefer the fruit in preserved and other forms made from the seeded fruits—but the Mexican eats everything inside the skin, and usually part of the latter also, the spicules being previously removed by rubbing with leaves or straw or similar material.

The Mexican also cooks or evaporates the seeded pulp to various degrees—producing a sirup known as "tuna honey"; a moderately stiff paste called *melcocha;* and a very thick paste, or "cheese," similar to plum and guava "cheeses."

Because of their rapid growth and prolific fruit-bearing habits, the opuntia cacti present greater commercial and economic possibilities than those of any other genus. Many experiments are being made with the hope of improving the best varieties so as to make them more generally serviceable, as they flourish in soil and other conditions unfavorable to general plant growth.

The Prickly Pear is also known as India fig, tuna, and barberry-fig. Of these, "India fig" is best confined to the ficus-indica species and hybrids; "tuna" is correct only when applied to the tuna species and hybrids; and "barberry-fig" is best restricted to the fruit of the vulgaris.

PRINTANIER SOUP, or Consommé Printanier, a consommé (see article on Soups) containing a number of vegetables, as carrots, turnips, string-beans, and green peas, the larger cut into small pieces, often in fancy shapes. *Printanier* signifies "spring style."

PROTEIN. See the article on Food Values.

PRUNES, dried plums of certain cultivated varieties. Until as recently as 1890 almost the entire supply was imported from Europe, the principal sources being France, Spain, central Europe, and the Balkans, but to-day the general market is fully supplied by California and the other Pacific states, and a great many millions of pounds of the California product are annually exported to every part of the world, our best customers being Canada, England, northern Europe, Germany, and France.

The California industry started with a few cuttings of the famous French *prune d'agen* which a Frenchman by the name of Peller planted there in 1856 in his fruit-garden in the Santa Clara valley on what is to-day part of the site of the city of San José. At that time the French product led the world. It was soon found that the prune throve in the Santa Clara valley and in other similar localities and that the hot, dry summer brought out its full saccharose qualities. Commercial planting commenced in 1870, and a few years later the industry commenced its rapid expansion to its great present importance. The course of development was as straight as it was rapid—the prune d'agen still stands supreme as the chief California prune and the Santa Clara valley remains the greatest producing district. Other prunes are larger and some of them are also excellent in flavor, but none has yet combined all the qualities of the prune d'agen—its aromatic flavor, its high sugar content (often exceeding 50% in the dried fruit), its dense, fine texture, its small, smooth stone, and the great adaptability of the tree. An average tree will give from 150 to 300 pounds a year—the figure has gone above 1100 pounds.

By the French method of treatment, the plums for the finest grades are picked by hand, spread in shallow baskets, and set in a cool, dry place until they become soft. They are then placed on sieves and shut in spent ovens. At the end of twenty-four hours they are taken out, but only to be replaced after the ovens have been slightly reheated. This process is repeated once more, the fruits during the interim being turned by slightly shaking the sieves, and then they are removed and allowed to become cold. Finally comes the packing in hermetically sealed cans, tin boxes, and glass jars.

The drying process requires a considerable degree of skill, the aim being to develop the sugar of the prune without changing its flavor or detracting from its fruity character.

Some packers follow the drying by various supplementary treatments—obtaining a darker color by means of a harmless pigment, and coating with glycerin to keep the fruit soft and tender.

The largest fruits of the highest grade of French prunes number about thirty to the pound. From this, they run up in number and down in grade to 130 to the pound. The figures 50 to 55, 80 to 85, etc., which occur in price-lists, refer to the number of prunes to the pound.

It takes an average of 2½ to three pounds of the fresh fruit to make one pound of prunes, the difference representing the evaporation of the water content.

By the California method, the fruit is generally allowed to fall from the tree in order to secure the fullest ripeness and consequently the greatest possible sugar content. Drying in the sun is also substituted for the oven-drying of the French process, being preceded by immersion in a mild lye solution and a clear water rinse. The prunes are finally graded into sizes—by decimal grades commencing with twenty to thirty to a pound—and then treated to a cleansing bath of scalding water. The bulk of the product is marketed in boxes of five pounds and upward. The smaller "fancy" packings include a number of glacé types, stuffed with apricots, nut meats, ginger, etc. The canned product ranges from small "individual" cans, holding only eight or nine prunes, up to the gallon size.

The nutriment value of the California prune is high because of its large content of easily digestible sugar, and it is also valuable as a laxative—the water in which it is stewed being for this reason frequently employed as a vehicle for purgative medicines.

Next in importance are Oregon prunes, and those of the neighboring state of Washington. They are chiefly of an Italian fruit and constitute a different product —lower in sugar and tart in flavor. There is an increasing demand for them among people who do not like the full sweetness of the California prune.

It seems a pity that cheap humor and poor jokes should be laid so heavily on such an excellent, serviceable fruit as the prune—which is always good, always in season, and capable of use in so many different ways—stewed alone, or (in the case of California prunes) with tart plums, oranges, lemons, and spices; in pies, puddings, and cakes. The persistence of the ridicule that pursues it, is in part a relic of the time when the common prune was a cheap, poor fruit imported in barrels from central Europe and the Balkans, and in part due to the wide ignorance concerning their proper preparation.

Many people make the mistake of *boiling* the fruit, thus dissipating much of its aromatic flavor and splitting its skin and flesh. This initial mistake is frequently followed by over-cooking—converting the whole into an unsightly, mushy mess.

Instead, the fruit should be cooked very slowly—without ever reaching the boiling point. Cooking should be continued until the prunes are thoroughly tender—but no longer. One will thus (if the raw fruit is of good quality) obtain stewed prunes that are flavory, delicate but firm, and in every way delicious.

The cooking is shortened and simplified by setting the prunes overnight in sufficient warm water to somewhat more than cover them—then cooking them next day in the same water.

No sugar is needed for good California prunes. Those of the Oregon type are generally improved by about a tablespoonful for each pound.

Brignolles prunes, or *Prunelles,* or *Prunellos,* are trade names for a small acid variety of French prune, peeled before drying and pitted before being offered for sale. Their flavor suggests the apricot. The true French *prunelle* is the SLOE (which see).

Ruby prunes are fruits plucked and processed just before ripening. They are ruby-red and more tart in flavor than those fully ripened.

Silver prunes, which look somewhat like mammoth "Sultanas," may be ordinary prunes so processed as to give them a light yellowish color, but the best grades are of the dried, mildly tart Silver Prune, a development of the Coe Golden Drop plum.

PUFFBALL, or Smoke-ball, an order of fungi which derive their popular titles from the fact that when ripe and dry they will, if squeezed, emit their "spores," or seeds, in puffs like smoke. Several species equal the common mushroom in properties and flavor. They are found in many parts of the United States, both in open pastures and woodlands, and in divers shapes, but generally round or nearly so, with (at the edible stage) white, grey, cream-colored, or light-brown exterior, and of various sizes—from very small up to the Giant puffball (*Lycoperdon giganteum,* or *Calvatia maxima*), frequently the size of a man's head, and sometimes reaching three feet in diameter.

The large puffballs are generally the most desirable; small varieties and sizes are usually lacking in flavor. The Giant puffball referred to above is perhaps the best of all, but it is so scarce as to be relatively unimportant.

The most common, and the next best in flavor, is the large Field, or "common pasture," or Cup-shaped puffball (*L. cyathiforme,* or *C. cyathiformis*), illustrated in the double color-page inserted between 334 and 335. It has a nearly smooth surface, with thin, whitish-grey or brownish skin which becomes purplish with age, and ranges from two to six inches in diameter. It is roundish or depressed roundish in form—the title "cup-shaped" often applied to it being derived from the appearance of old specimens after they have sloughed off their upper parts and dispersed their spores.

When at the right age to be enjoyed, the flesh of a puffball is a loose tissue, smooth, homogeneous (somewhat like cream cheese), elastic, and (in the best kinds) fragrant—without any discoloration and without any sign of any internal structure or growth. If there is any yellowish, or greenish, or brownish, or any other discoloration of the flesh, the specimen should be discarded, for it is unsound or too old. If there is any sign of any internal structure in a specimen examined—if it is not entirely homogeneous—it should also be rejected, for it is not a puffball (or at all events, not a normal one).

A good puffball is tender, easily cooked, and easily digested. It may be prepared in any way suitable for mushrooms. Large specimens are generally cut in slices of an inch or less in thickness and then fried—preferably in butter, and preferably in a deep, covered pan. The result is especially pleasing if the slices are dipped in egg yolk before frying. Some people prefer batter to the yolk.

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Pumpkins in a Pennsylvania cornfield

PULSE, the fruit of leguminous plants. See LEGUME.

PUMPKIN. When the title "pumpkin" is carefully restricted, it applies (by American custom) only to the large, late, roundish or oblong varieties of *Cucurbita pepo,* cultivated in fields of maize by the Indians before the coming of Columbus as they still are to-day by our own people in the fifth century after his arrival. Large specimens weigh fifty or more pounds. More freely used, the

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A California pumpkin farm

name embraces earlier varieties of the same species, such as the Sugar pumpkin, and numerous squashes of other species, as the Canada, or Winter, Crookneck squash, or "pie pumpkin" (*C. moschata*), and the very firm, yellow-fleshed giants of *C. maxima* (see SQUASH). The huge exhibition pumpkins of 200 or more pounds weight are generally of *C. maxima*—which is also the standard "pumpkin" of Europe.

The fruits are eaten, like squash, as a vegetable, and in France made into soup and added to meat stews—and they also furnish nutriment for great numbers of

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Carloads of pumpkins awaiting shipment

hungry cattle—but it is in the form of "pumpkin pie" that they have achieved the highest fame.

Modern cultivation supplements the cornfield crop of pumpkins with those grown in fields devoted exclusively to a pumpkin crop.

Pumpkins may be kept fresh until spring if gathered just before fully ripe and if the storage place is dry, cool, and protected from frost. The best method is to place them on shelves, seeing that they do not touch each other and occasionally wiping them off with a dry cloth. Peeled, cut up, sun-dried, and properly stored, they can be used all the year.

For pie and all other culinary purposes, "pumpkin flour"—dehydrated, sliced pumpkin, ground to a powder—is a convenient and satisfactory substitute for the fresh fruit.

Enameled cans should be used for putting up pumpkins in order to avoid discoloration.

PURSLANE, a plant of the portulaca genus whose thick, fleshy stalks and leaves are well liked in many parts, either cooked (fried or boiled) or for eating raw as a salad. Both the trailing wild plant, native to the southwest United States, and the improved erect French varieties are thus consumed—the latter being the more tender and considerably larger.

Winter purslane, common to the banks of streams along the Pacific Coast and east to Arizona, is a plant of the same family but of a different genus (*Montia*). The wild and cultivated forms are alike eaten as salad-plants and greens.

For "sea-purslane" see ORACH.

QUAIL. The quail proper is a bird of the eastern hemisphere. It is smaller than the American, or Virginia, "quail" (see BOB-WHITE), and of variegated reddish-brown plumage, the most noteworthy markings being the buff or whitish stripes over its upper parts. The tail is short and thin, and the bill weak and undeveloped.

History tells us that in ancient times the Israelites, wandering through the deserts, fed on quail—and still to this day they are so plentiful in Egypt that the people cannot consume fresh the numbers captured during the season for hunting them, and large quantities are salted down and dried in the sun for future use. At migration time, parts of the southern shores of the Mediterranean are almost covered with the birds, and they are netted in enormous numbers and shipped alive, by the steamer-load, from Algiers and Alexandria to Marseilles, to be thence conveyed to all parts of the Continent.

QUINCE, a fruit of the apple and pear class, native to southern Europe and Asia. It was an article of popular consumption among the ancient Greeks and Romans and was the original marmalade fruit (see MARMALADE). It is in season here from October to December, western New York supplying the greater part of the American crop.

The tree is dwarf in habit, more often below than above fifteen feet in height, with branches numerous, crooked, and distorted; leaves dusky green above and downy on the under side, and flowers similar in shape to apple-blossoms, but larger and more open, and white or of pale pink tint. The fruit varies in form from round to pear-shape, and when ripe is of a rich yellow or greenish yellow and of strong odor.

FINE ORCHARD-GROWN QUINCES

The best varieties are the "apple" (or "orange"), "pear," and "Portugal." The first-named is generally rated as the choicest, its flesh in good specimens being especially tender and excellent in flavor. The Portugal is the largest.

Quinces require very careful handling, for bruises rapidly develop into dark brown discolorations. If stored in a cool, dry place and occasionally wiped with a dry cloth, they can be kept fresh and good for a considerable length of time. They are not eaten raw either in this country or in Europe, but they are delicious in the form of jam, jelly, and sauce, plain-boiled to eat with sugar, and mixed with apples in stewing. They are one of the best of "jelly" fruits.

The tree seldom enjoys either the location or the attention it needs to give the best results, the penalty being an unnecessarily large proportion of over-woody fruits. Careful cultivation of selected varieties in warm, dry, moderately fertilized soil produces quinces that are a revelation to the ordinary orchardist. In some parts of Asia their delicacy has been so enhanced that they take high rank among fresh table-fruits.

QUINOA, or Goosefoot, a big plant with woolly, arrow-shaped leaves cultivated in the elevated regions of Chile and Peru for its small, round, flat, glutinous seeds, which are made into bread, cakes, soup, beer, etc. It has the unusual merit of flourishing at a height of 13,000 feet above sea-level. There are several varieties, with different colored seeds—the white-seeded being the staple edible type. It is grown to a limited extent in England, the young leaves being consumed as greens and the seeds being fed to poultry and swine, and it is occasionally cultivated here—but more as a curiosity than for practical purposes. The high food value of the seeds and the good vegetable quality of the young leaves entitle the plant to greater consideration.

RABBIT, a title applied variously and contradictorily to a number of small game animals of the *Leporidae,* uncertainly placed generically and specifically. In some parts of the United States the name is applied also to hares (see HARE). The animals multiply very rapidly and often constitute a serious menace to vineyards, young orchards, and truck-gardens. Their increase to the proportions of a pest in Australia and New Zealand is a matter of common knowledge. The chief American genus is *Sylvilagus* (Lyon), which embraces the "wood rabbit," or "cottontail"; that of the Old World is *Oryctolagus* (Lyon).

The domestic rabbit has been bred into a great many types—widely differing in both body and ear size, and in color and style of fur. The most popular commercial breeds range in mature weights from eight to more than twenty pounds, several making very rapid growth—often reaching six or more pounds at five months of age. The wild rabbit of good average development weighs from two to three pounds, or a little more.

The flesh of young, plump animals makes good eating,—both wild and domesticated, fresh and canned. Those who enjoy a delicate gamy flavor will prefer the dark meat of the wild rabbit; others will find more enjoyment in the mild, white flesh of the domesticated.

The domesticated rabbit is best for frying when from two to three months old—then generally from three pounds upward in weight—and for roasting or stewing at any age up to eight or nine months. The dressed weight is about half of the live.

The fat percentage of the flesh (even of plump, domesticated animals) is small compared with that of "butcher's meat," but by other comparisons it stands high in

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Two loads of New Zealand rabbits, to be frozen for export. The wagon on the left contains 600; that on the right, 1220

food value, and (in the case of the plump, young, domesticated animal at all events) is readily assimilable by the average person.

The canned-rabbit industry is centered principally in South Australia and New Zealand. The rabbits are caught at night, dressed with the skins on, and taken by the cartload to the factories. There the heads are removed—to be afterwards boiled down for jelly—the legs cut off, and the pelts laid aside. The bodies are slightly salted to remove the blood, then washed, chopped into pieces of suitable size, and canned in the usual method.

Rabbit meat is subject to somewhat curious prejudices. In England and France it is a very popular food, but in this country the sale is comparatively small—and, curiously enough, this lack of appreciation is shared by West-Indian negroes, despite their enjoyment of snakes, toads, and centipedes!

The rabbit is an especially convenient-sized animal for raising, handling, and consumption, and it is easily cared for and economically fed. It doesn't furnish eggs, but otherwise it closely parallels the chicken in the advantages it offers to farmers and country residents—except that the larger varieties resemble the turkey rather than the chicken in the quantity of meat they develop!

RACAHOUT, or Racahout des arabes, originally an Arabian beverage, made from roasted acorn-meal, sweetened with sugar, and flavored with aromatic herbs. The title is now generally applied to a food prepared from potato-flour, tapioca, and cocoa-flour, flavored usually with vanilla. It resembles arrowroot and is intended principally for children and invalids, either as a beverage or cooked to thicker consistence.

RACCOON, or "Coon," a small, omnivorous, nocturnal animal, with a broad head and narrow muzzle, which generally averages about the size of a large cat. It is common in various parts of North America and is considered good game by many people. It is marked by very short legs, a coarse furry coat of brown or grey-brown, and a bushy tail, generally ringed in black and white.

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Raccoon

RADISH, a root of practically no nutritive value (it consists principally of water and wood-fiber with a little acid for flavor) but so popular as a relish that it constitutes an important article of the market-gardener's crop.

There are almost innumerable varieties, in all sizes, shapes, and colors. Early radishes are generally the smallest, and winter types the largest. The three chief divisions by shape are into the round, olive-shaped, and long. The principal colors are red, white, yellow, purplish, and black. Under proper cultivation there is little difference in quality among standard varieties, but the red, and red and white, are usually preferred because of their pleasing appearance.

Quick growth and pulling at an early age are essential to the production of tender radishes. Any that become too coarse to be desirable for eating raw may be boiled as a vegetable.

The season of the fresh-pulled radish extends from early spring, when forced growths appear, to late fall, successive plantings giving a continuous supply of young roots.

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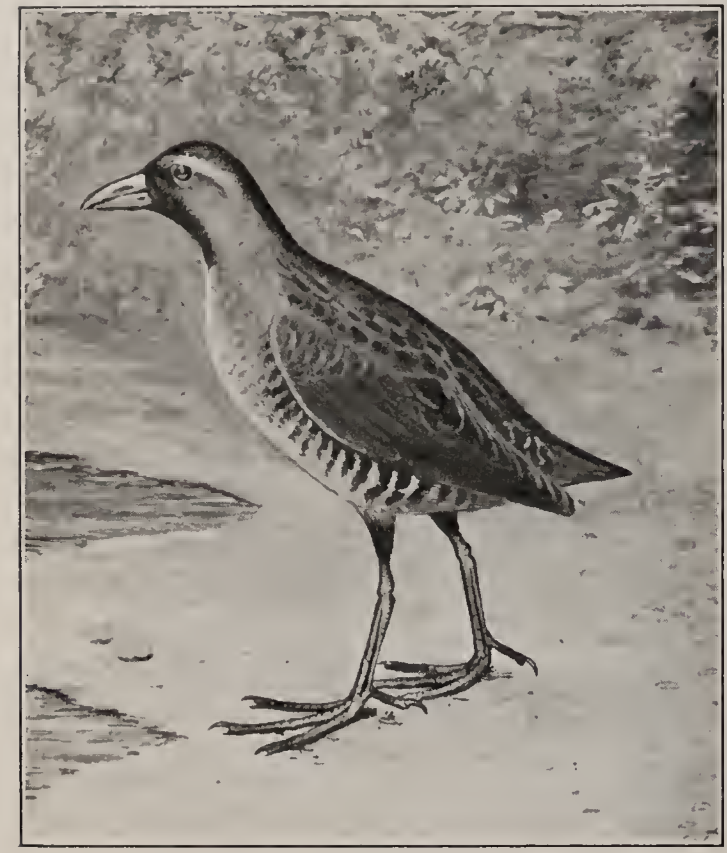
Sorting daikons—large Japanese radishes

Winter radishes are generally of slower growth than the spring and summer types and some attain very large size, a few kinds reaching a length of fifteen to twenty inches without becoming woody or woolly. They are generally pulled in the late fall and kept through the winter by storing in dry cellars or similar places. The largest of all are the Chinese and Japanese, with plants two to three feet in spread and with roots that often weigh forty or more pounds each. They are coarse in flavor and texture, and are generally cooked.

RAIL, a group designation for a large family of birds distributed over many countries and ranging in size from the small Sora to the big Clapper-rail. The marsh rails—which include both the birds referred to in the preceding sentence, and also the inland Coots and the Florida and other Gallinules, all of them known likewise as "mud-hens" and "water-hens"—are numerically the most important and are marked by the peculiar formation of their bodies—which are broad and blunt behind and very narrow in front, this shape enabling them more readily to make their way in, through, and around the tall reeds of their marshy homes.



Sora—a little less than ⅓ linear measure

The sora—also called "Carolina rail"—is the best known in the markets. Its upper plumage is of greenish or golden brown with black and white markings, the front of the head and throat black, and the under-parts brownish or slate-colored with black and white bars. Plucked and ready for market, the birds average in weight from 2½ to three pounds a dozen—this average being, however, dependent on a normal season.

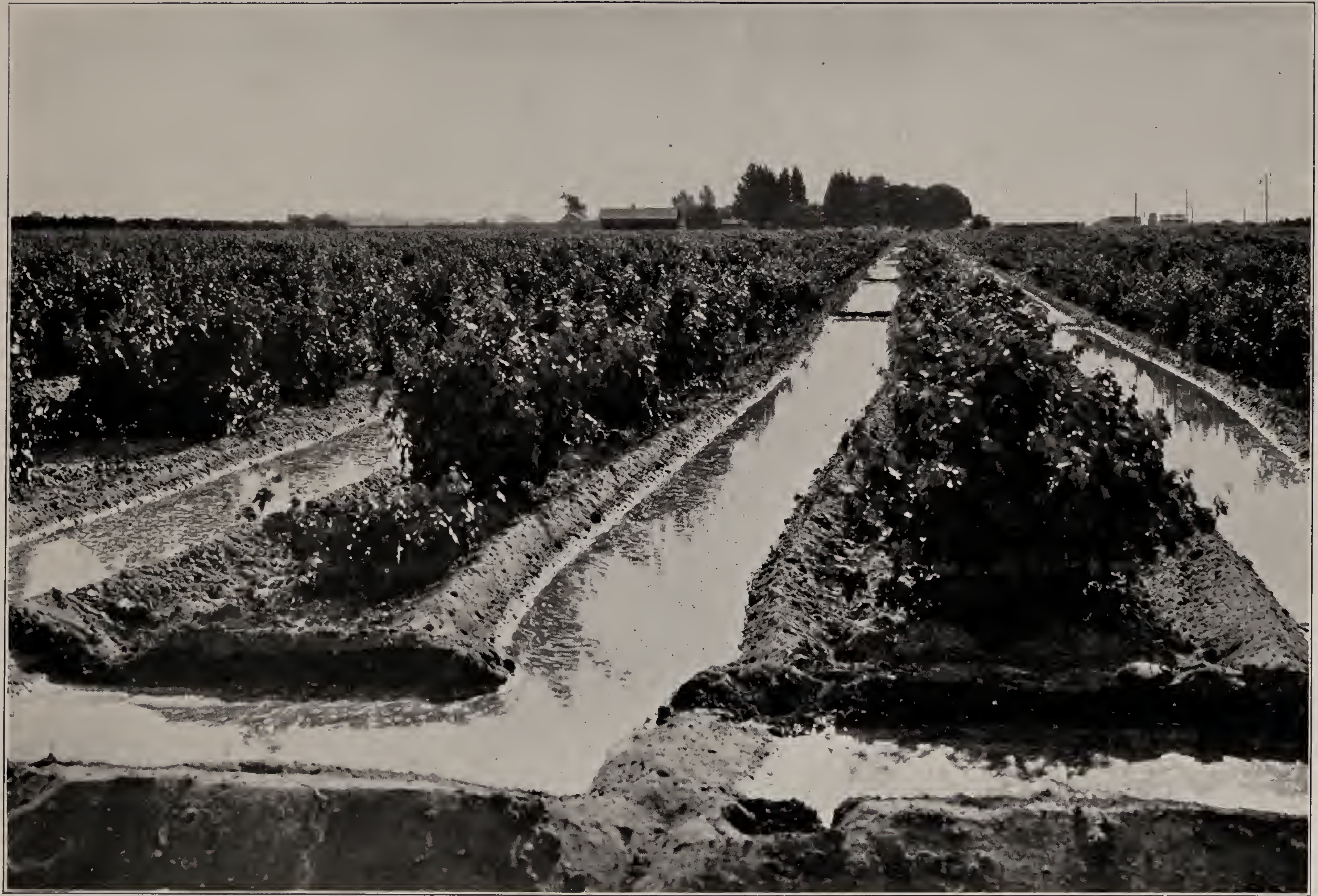
RAISINS, grapes of high sugar content prepared by drying.

California is the greatest raisin-producing country in the world. Its crop has grown from only 120,000 pounds in 1875 to the present total in excess of 300,000,000 pounds. Fresno County alone exceeds the entire output of Spain, second on the producing list.

California raisins are all of grapes of the *vinifera* species (see Grape) and chiefly of the California White Muscat and Thompson Seedless varieties.

The *California White Muscat* is a mixture of the White Muscat of Alexandria and the Gordo Blanco, both imported in the early days and now varietally indistinguishable. When ripe, it is a large, white-bloomed, amber-flushed, yellowish-green, smooth, tender, thin-skinned grape with firm, rich, fruity, moderately juicy, finely flavored flesh. It averages five-eighths of an inch in diameter by one inch in length, and is borne in long, loose, straggling clusters. It is distinctly a raisin grape and is not shipped fresh to any considerable extent because of its tenderness.

The clusters are cut from the vines when thoroughly ripe, and placed to dry on wooden trays set between the vine-rows. When they have wilted sufficiently, an empty tray is placed over the full tray and by a quick movement their positions are reversed, so that when the top tray is taken off, the "raw" under-sides of the clusters are exposed to the sun. Later, the trays are stacked in order to finish the curing



Irrigating a California raisin-vineyard

more slowly. Next, the fruit goes into boxes which hold about 150 pounds each for the sweating which equalizes the moisture of the fruit.

After the sweating comes the separation into two classes—"cluster" and "loose." The large bunches are sorted out by hand as "cluster" (or "bunch") raisins. The balance are marketed as loose raisins—stemmed, graded for size, sterilized, and seeded. The highest quality of cluster raisins is designated "six crown," the next is "five crown," etc.

The other important California raisin—the *Thompson Seedless* (or Oval Kishmish, or Sultanina)—grows in very large, conical bunches of oval, yellow berries, small to under-medium in size. They are low in acidity and entirely seedless.

The smaller *"Sultana,"* or Round Kishmish, is also grown in limited quantities. It generally shows a higher acid content than the Thompson Seedless, and occasionally develops seeds.

Of **Imported Raisins** the principal types are the Spanish Malagas (or Muscatels) and the Smyrna Sultanas. Choice cluster Malagas are exceptionally large, handsome, and delicious fruits.

Smyrna Sultanas, or Smyrna Sultana raisins, are seedless and, in the best grades, of a pale yellow, transparent tint and very fine flavor. They are commonly elongated in shape

Corinthian raisins is a separate grade of sultanas, usually larger and a little darker than the Smyrnas.

In Syria and other parts of the Old World, quantities of grape bunches are wrapped and tied in vine-leaves and thus laid on straw mats to dry in the sun, the dried, contracted leaf-wrappings protecting them in all future handlings up to their possession by the consumer.

RAISINÉE, a French jam of thin, almost sirupy, consistence, obtained by the slow cooking and condensation of fruits in sweet wine or cider. The original and best product is prepared from pears together with a small proportion of quinces. Another kind is of grapes with the addition of quinces or apples. Squashes, beet-roots, etc., are substituted in the manufacture of inferior grades.

RAMPION, a garden-plant whose young leaves and succulent white root are used both raw in salads and cooked as vegetables. The root, a foot or so in length, looks like a long radish, and may be stored for use through the entire winter.

RANGPUR, a citrus fruit grown, like the lemon and lime, for its acidity. It is generally globular, sometimes compressed at the poles, and about the size of a small lemon, with reddish skin, and deep-orange-colored flesh.

RASPBERRY, one of the most delicately flavored of small fruits. It grows wild in many parts, but only the cultivated varieties—now chiefly of American species—are generally marketed. It is their greater hardiness which has brought about the displacing of European by American-developed varieties.

Raspberries are generally in season from the middle of June to the middle of August. It is essential that they be used quickly, as they deteriorate very rapidly after ripening and their flavor is often entirely lost after holding for a few days. Care should be taken that moisture does not reach them and that they are kept in a cool, well ventilated place.

The red berry is the type most generally familiar as a fresh fruit, but the native black raspberry, or "black cap," is extensively employed for both canning and evaporating. It is a very pleasing fruit, though not so choice or delicate as the red. Some localities produce yellow and purple raspberries also to a limited extent, the latter being a hybrid of the red and black fruits. Red raspberries grow on erect canes, black and purple fruits on arched canes. New York and Michigan are the chief producing states.

The business of evaporating raspberries has attained important dimensions. For sauces and pies the product answers the purpose nearly as well as the fresh fruit.

Raspberry juice and raspberry sirup, of both home and commercial make, have long been popular for use in hot weather drinks, etc.

See also the color-page of BERRIES facing 42.

RASPBERRY VINEGAR, a preparation of raspberry juice, vinegar, and sugar. It is best made by filling jars with carefully gathered, very ripe berries, adding all the vinegar they will hold, setting to stand for eight or ten days, and then carefully pressing out the liquid. This process is sometimes repeated three times—the same liquid, but fresh fruit being employed. Finally comes a gentle boiling for five minutes with an equal weight of refined sugar, and then bottling. As a flavoring for either plain or carbonated water, used in the same way as any other fruit sirup, it makes a refreshing summer beverage, the vinegar giving it an agreeable acidity.

RAY-FISH. See article under the heading of SKATES AND RAYS.

Redsnapper

REDSNAPPER, a famous southern fish, plentiful along the Gulf coast, rendered very showy by its deep rose-red scales, marked with bluish streaks, and its brick-red fins. It ranges in weight from three to thirty or more pounds, and is in season from October to July. The flesh is white and excellent.

REED-BIRD, a title applied to many small birds which frequent reeds. In the United States the *Dolichonyx oryzivorus* is most generally so named and served. It is a pretty little creature, a happily welcomed summer visitor in the North, where it lives principally on insects and weed-seeds and is commonly known as the "bobolink." Later, it heads southward again, favoring and fattening on the "wild rice" of the rivers and other inland waters of its course. It is particularly at this stage of its career that it is shot and eaten as a "reed-bird"—and highly esteemed, for it is very plump and a real table delicacy—it has been described as "a little ball of fat." In the South, though, this popular little "bobolink" and "reed-bird" is the hated "rice-bird'' which pulls up the seedling rice-plants on its spring journey north and ravages the ripening fields on its late summer or early fall return. It is again very good for eating after the latter experience but at high cost to the rice planter!

REFRIGERATORS. See in the article on Ice, Refrigeration, and Cold Storage.

REINDEER and Caribou, deer of the *Rangifer*—restless, roving creatures—inhabiting arctic and subarctic regions of both the Old and New worlds. In this country, the original European title of ''reindeer'' is frequently employed to designate specifically the European animals, the native wild creatures being then grouped under the title of ''caribou,'' but some writers use ''caribou'' as the title for the entire genus. The American caribou are also divided into two main types—the smaller, more northern ''Barren Ground''; and the larger, more southern ''Woodland.'' The division is justifiable in a general way, though the titles chosen are unfortunate, the conveyed impression of a sharp division of the living habits of the two types being to a considerable degree incorrect.

The North-American caribou have always been hunted by Eskimos and Indians but have never been domesticated. The domesticated reindeer of Alaska are the descendants of comparatively recent importations of Siberian animals. The expansion of the herds, both by their own increase and by crossing with native caribou, and the extension of the project into the vast northern stretches of Canada, will develop a great new industry and a meat supply of international importance.

Average-sized caribou attain a weight of 300 to 500 pounds and a shoulder height of three feet six inches to more than four feet. Large ''woodland'' animals reach 700 pounds or even more, and a height of five feet. The reindeer is smaller and lighter.

The animals' dense coats vary with the strain, locality, and season. They are generally a shaded greyish or brownish on the upper parts and sides, and whitish-grey or white underneath and on the inside of the legs, with white markings near the tail and around the hoofs and muzzle. The caribou is as a rule, of lighter color than the reindeer. In both, the tail is short, the muzzle hairy, the throat maned, and the hoofs black. Both sexes are antlered.

The first domestication of the reindeer—perhaps in northern Europe, but more probably in northern Asia—is recent compared with that of the ox, but it dates back to at least 2000 years ago. It is a less complete domestication than that of the ox, for the animal needs wide range to thrive and is largely independent of man for both shelter and nourishment.

The reindeer is of high value to the people of northern Europe and Asia for its flesh and hide, and as a draft and riding animal capable of traveling readily over soft snow and swampy ground that would stall any other domestic creature. Its milk also is consumed, but the yield is small. The flesh of cows and steers is a very mild venison—it is, indeed, more like beef than ordinary venison if the animal has been taken at the right season and the carcass has been properly handled. That of a three-year-old steer is generally considered the best. The meat of the buck is too strong in taste to be desirable.

Reindeer tongues imported from Russia constituted an American delicacy of former years—sold side by side with native buffalo tongues.

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A herd of reindeer, the draft and meat animals of the North

RELISHES, a term flexibly applied to pickles, small fish variously preserved, and a number of other dishes intended to stimulate appetite.

RENNET, a combination of two inorganic enzymes, or ferments—rennin and pepsin—obtained from the membranes of the stomachs of young mammals. The best quality is that from an animal so young that it has received no other food than milk—the rennin then predominating—and of this the most desired is from a calf's stomach (its abomasum, or fourth stomach). After animals commence to eat other foods, pepsin predominates.

Rennet's chief importance from a food standpoint is its property of coagulating milk, and its widest food use is in the manufacture of cheese. Rennet extract is put up in liquid, powder, and tablet forms—the last-named popularly marketed as "junket tablets."

The first action of rennet on milk is to split up the casein and then to transform the whole volume of the milk into a "jelly." This is the dessert phase (see Junket). Later, the jelly develops into a separate, white, solid curd (chiefly of casein and fat with some water and a little sugar) and a straw-colored, liquid whey (chiefly water and the bulk of the sugar). This form also was once a popular dish, "curds and whey," and is one of the first stages of cheese-making (see Cheese).

The rennin of the human stomach is identical with that of the calf.

Vegetable rennet is a similar ferment common in seeds during germination.

RESTAURANT. The restaurant as we know it—a general eating-place for residents and travelers alike—is an institution of comparatively recent origin. Though there have been inns and taverns and hotels from time immemorial, they were in the old days (except for liquid refreshments) designed chiefly for the entertainment of travelers. We find evidence that so early as the sixteenth century some of the citizens of Paris had discovered the ease and convenience of dining in hotels, for a pamphlet of that period, entitled "A Treatise on the causes of high prices," bitterly assailed certain establishments for their example of luxurious living and its effect on the habits of the community, but this condition was apparently peculiar to Paris and even there the houses so favored were exceptional and their customers drawn from a limited class. There were also *rôtisseries* in the larger cities of France at a very early date, and *traiteurs* from about the sixteenth century, but the rôtisseries were forbidden by law to sell anything except roast meats, and the traiteurs anything except ragouts, or stews, so their business was largely confined to selling roasts and stewed meats to be carried away by their customers.

The word "restaurant" originally signified only "restorative," or "strengthening," and it is still employed in those senses also in France—a "restaurateur" may be either a "restorer" of paintings, or the keeper of a "restaurant." It first attained culinary significance in the sixteenth century, being applied then to a spiced broth—a "restorative" beverage—introduced by a Dr. Palissy. Later it was applied to various other "restorative" or "strengthening" foods, especially to gravy soups, bouillons, and similar preparations.

The first public eating-place which resembled the modern restaurant and was so designated, was that opened by a M. Boulanger in Paris in 1765. Boulanger equipped the interior with a number of little marble-top tables similar to those found in many modern cafés and there he served his customers with bouillon, *poulet au gros* *sel* (plain boiled chicken sprinkled with coarse salt), and eggs. He met with success from the start and soon added roast meats, stews, and various other dishes. His example was speedily copied, and the century and a half since the establishment of his initial venture has seen a steady increase in the number of restaurants in every part of the civilized world.

RHUBARB, or Pie-plant, a strong, perennial plant grown for its thick, succulent, acid leaf-stalks, which serve as an excellent "fruit" for use as sauce and in pies. They average from twelve to eighteen inches in length, but they can be produced in much greater size.

If they are dried in the sun, they may be kept a long time, and soaking overnight will render them nearly as good as the fresh product.

Where the market demands a considerable quantity of winter or early spring rhubarb it is generally grown under steam-heated, movable-sash sheds built over the field-plants. Smaller supplies can be readily obtained in cold frames set in the field, or from roots transplanted into hotbeds or greenhouses. The choicest forced rhubarb is grown in partial darkness in cellars or greenhouses—the stalks becoming very tender, only mildly acid, and with skin so thin that peeling is unnecessary.

Rhubarb leaves have from time to time held some vogue as a vegetable—*but they should never be eaten.* Their oxalic-acid content is sufficiently high to be dangerous for those with sensitive kidneys or intestines.

The rhubarb of the drug-store is a preparation of dried rhubarb rootstocks. It is sometimes of the species (*Rheum rhaponticum*) which furnishes the edible stalks, but the bulk of the best grades is from Asiatic-grown plants of the similar but larger-leaved and much more showy *R. officinale.*

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Harvesting rhubarb, Yorkshire, England

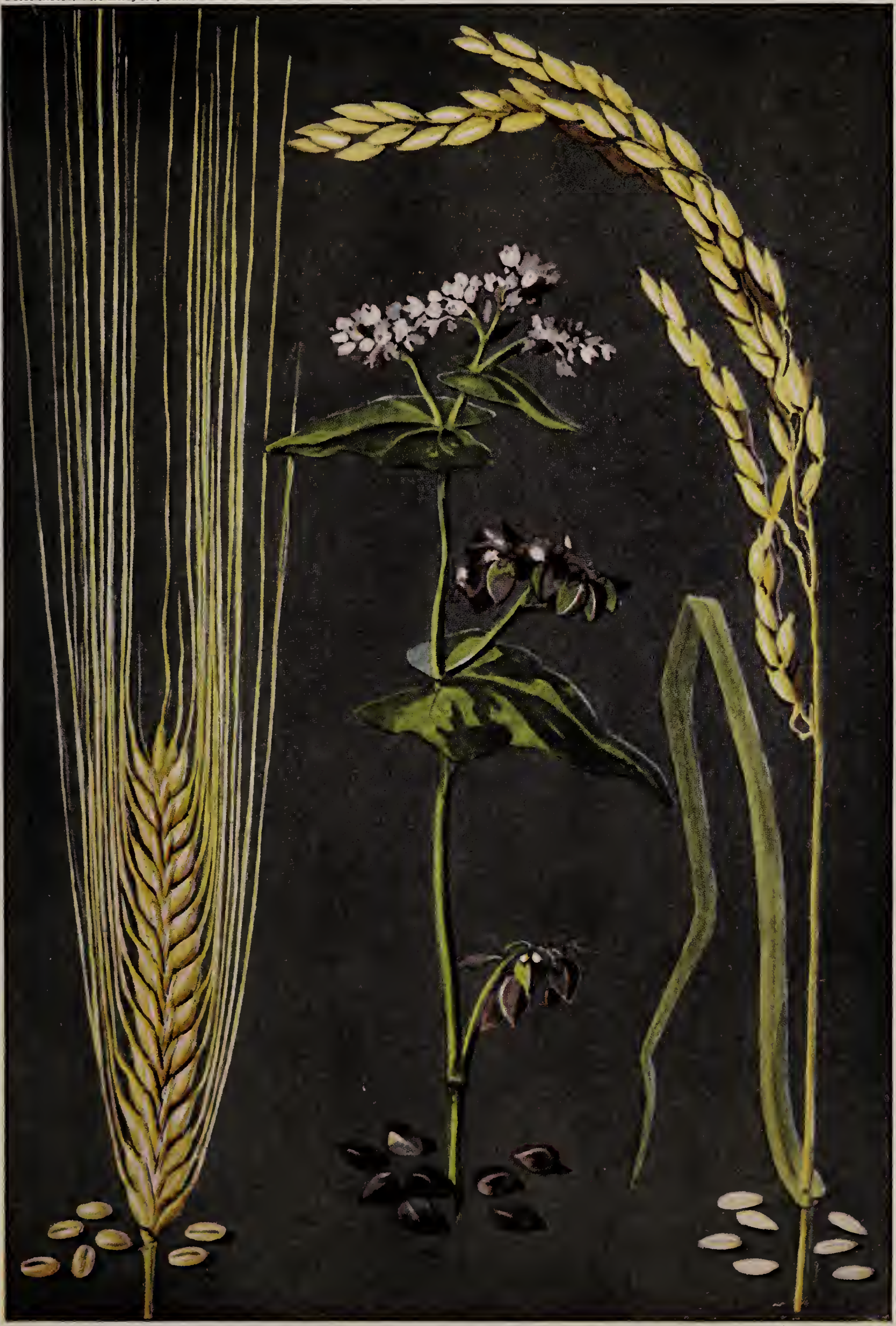
RICE (see the color-page opposite), the most extensively cultivated of grains and the principal food of more than a third of the entire population of the world. The plant, before fruiting, is in general appearance a good deal like wheat, but its seed-head, or panicle, is entirely different—it consists of a number of fine stalks, each one bearing a single grain, instead of the compact ear of the wheat-plant. In the commonly cultivated and most productive types, it must be kept flooded during the growing season, and it is in consequence most easily raised on level lowlands with shallow soil resting on a clay subsoil. It can, though, be grown at almost any elevation if irrigation is feasible. In Japan and the Philippines, satisfactory crops are obtained even on the terraces of hills and mountainsides by periodic flooding from reservoirs above. ''Upland rice,'' originally cultivated in the South for forage but now also to some extent for human consumption, does not require flooding—it is grown much as is any other grain crop.

Rice cultivation was started in this country in 1694 when a Captain Smith, arriving from Madagascar, presented a bag of ''paddy,'' or rough rice, to a merchant of Charleston, S. C. The industry developed steadily, and production in South Carolina and Georgia during the generation preceding the Civil War was close upon or exceeded a million barrels a year. A new impetus was given shortly after the close of the Civil War, when its field was extended to Louisiana by a small colony of Germans in what is now Acadia Parish, La. From Louisiana, cultivation spread to Texas and Arkansas, and recently to California. These four states, in the order given and with Louisiana heavily leading, produce about 99% of our present crop—which has grown through difficulties, triumphs, and vicissitudes, to an annual value of many millions of dollars. The United States is indeed fast developing into one of the world's greatest rice-growing countries — improved machinery and greater fertility of soil tending to offset the cheaper labor of eastern countries.

There is every reason why rice should be an every-day article of diet in American homes. It is very nutritious, easily digested (because of the minute size of the starch grains and the delicacy of their

Gilliams Service

Plowing a rice field in China



BARLEY
"Common," or Two-rowed

BUCKWHEAT

RICE

cell walls), almost completely assimilated, and (properly prepared) very palatable. Uncooked "white" rice (the grain, as chiefly marketed, with the outer layers removed) contains an average of nearly 88% of nutrients—a little more than wheat. The components include 8% protein, 79% carbohydrates (chiefly starch), and a very small amount of fat. "Whole," or "brown," rice includes 2% fat, or a little more than wheat. In countries where it is the principal article of food, the protein required to complete the diet is supplied by soy-bean cheese, etc., and frequently also by the consumption of fish and other kinds of flesh. In this country, meat and milk are among the most important accompaniments.

The initial preparation of rice for the market involves thrashing (which gives "paddy," or rough rice) and milling, which first removes the husks (yielding "whole," or "brown," rice) and then (if the ordinary "white" rice is desired) also the outside layers of the grain. White rice is next polished by means of rapidly revolving pigskin-covered cylinders (mooseskin or sheepskin was formerly used).

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Rice-planters at work, Japan

Brown Bros.
A growing field of rice

"Coated rice" is polished white rice thinly coated with a mixture of corn-sirup and talc to give it a pearly lustre. The coating readily dissolves when the rice is washed.

There is much confusion in the use of the terms "unpolished" and "polished." "Unpolished" has been largely used as a trade title for "uncoated," and "polished" has signified "coated." This is incorrect, for polishing and coating are separate processes, as noted in the preceding paragraph. Practically all white rice is polished. If the term "unpolished" is employed at all, it should be applied to whole, or brown, rice.

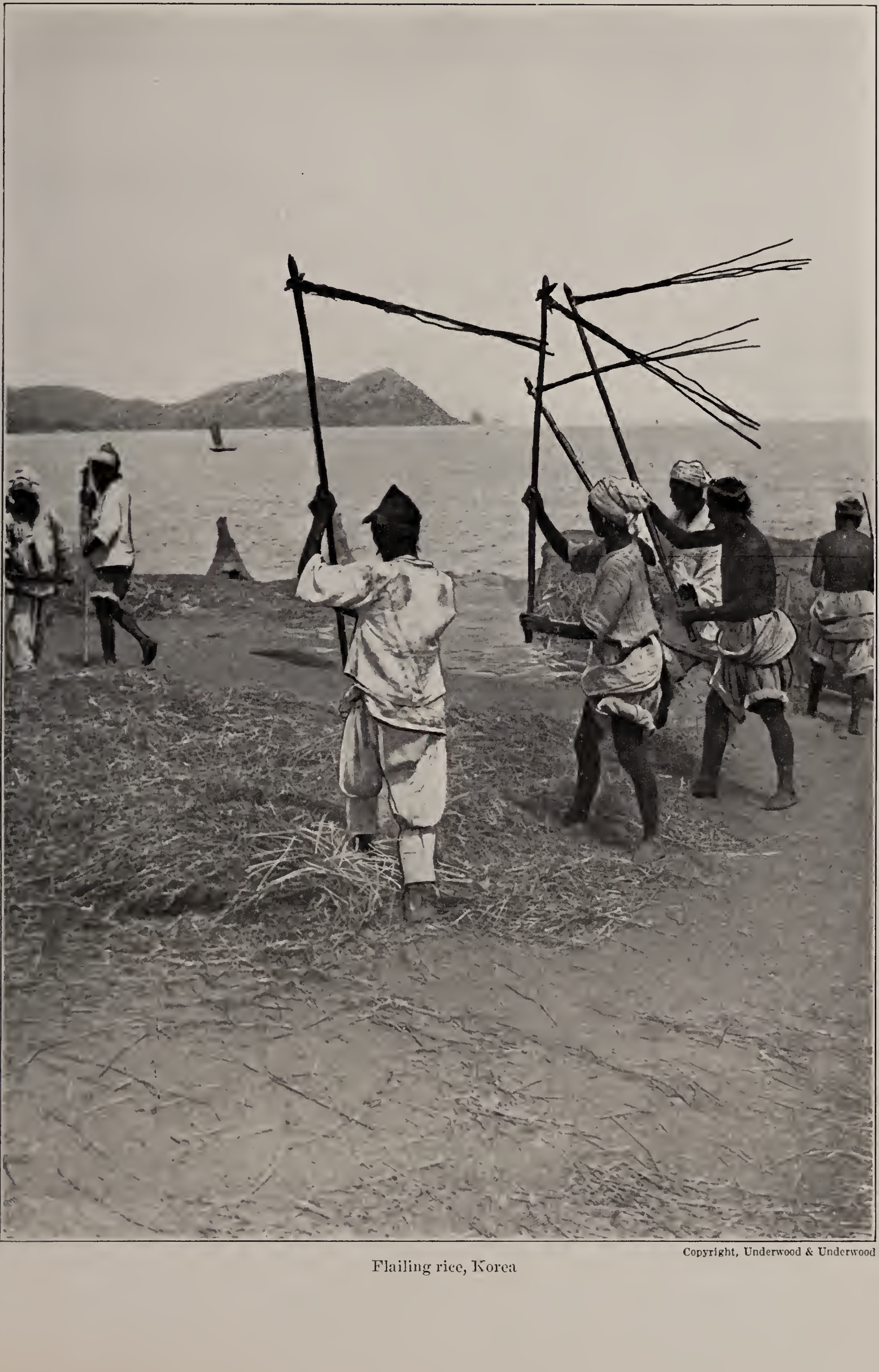
The removal of the outer layers of the rice-seed is a blunder from the standpoint of food values. It robs it of part of its nutrients and all of its vitamins, and deprives it of much of its flavor. These points are comparatively unimportant if the food supply is otherwise well balanced, but they become matters for serious consideration if the diet is poor and scantily supplied with other vitamin sources (see Food Values).

International

Irrigating a rice field, Philippines

Better acquaintance with high-grade brown rice would result in its wider appreciation. It requires, however, greater care in storing and handling, as it is more subject to the depredations of weevils, and needs twice as long, and more careful, cooking.

White rice should be bright and flinty in appearance — not muddy. If of high price, it should, furthermore, be white or creamy. If of moderate or low cost it may be greyish or slightly rosy. A "fancy" grade should also be practically free from damaged and chalky grains, foreign seeds, grit, hulls, etc., and should contain only a small percent-



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Flailing rice, Korea

age of broken grains. A yellow look in "white" rice signifies that it has been kept overlong.

Brown rice varies from light yellowish to brownish, with a few greenish grains.

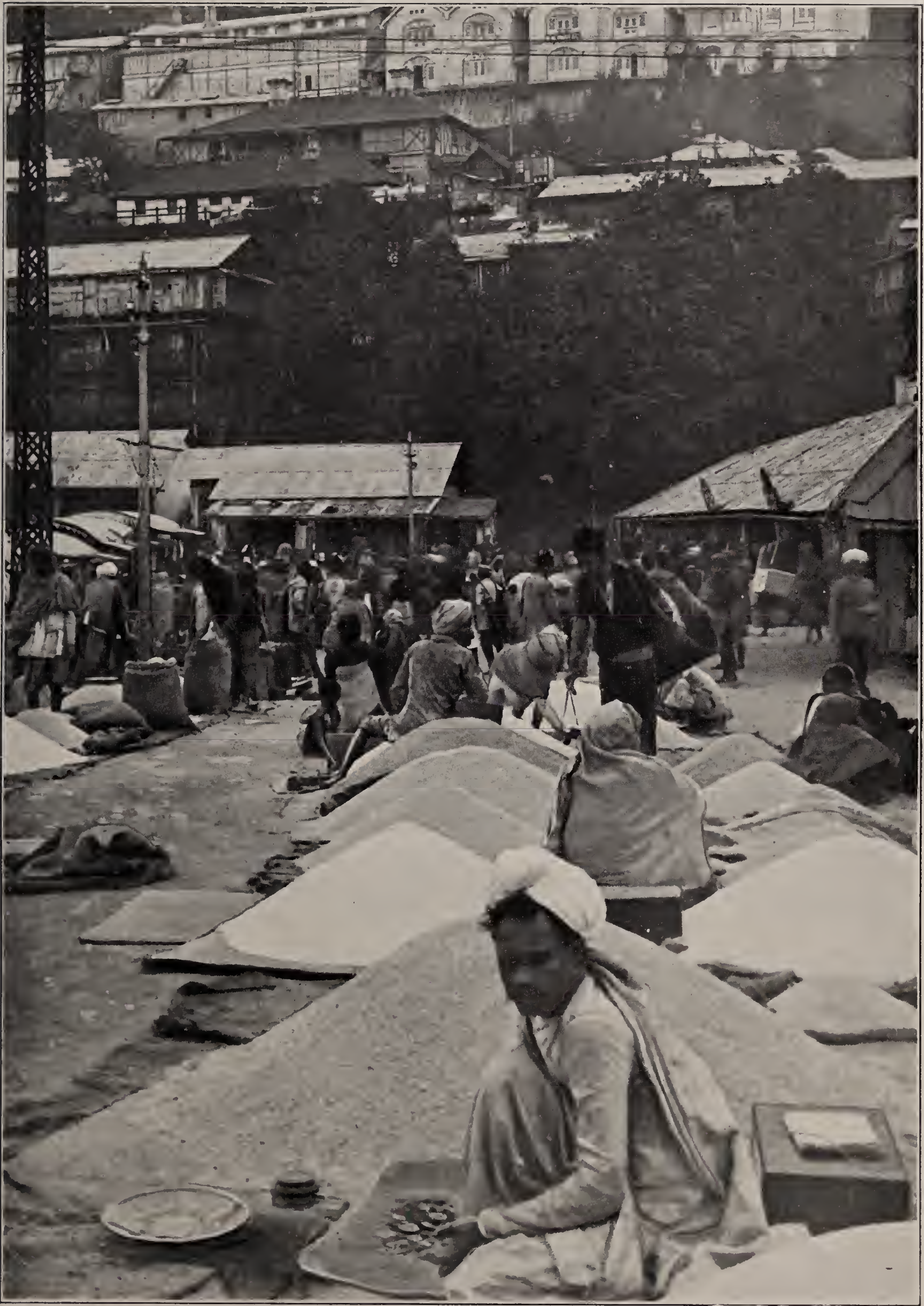
Honduras, Carolina, Blue Rose, and Japan are the best known of American cultivation, and of them Honduras ranks the highest. Domestic "extra fancy" Honduras—a long, slender, sweet grain—is, indeed, the finest rice grown, commanding top listing in all the world's markets.

Carolina is a long, generally thicker-bodied, grain. Japan is round-bodied and soft-grained. Blue Rose is of medium length—it is classed as "short"—and is in style about midway between Honduras and Japan.

The bulk of imported rice is grown in India (especially the province of Burma), French Indo-China (known commercially as "Saigon" rice), and Siam. The most highly esteemed is the Patna—long, slender, well-rounded, pearl-white grain—grown and partly milled in India and finished in Holland and other European countries, but the quantity imported is inconsiderable. The total from all sources runs into very large figures—being, however, greatly exceeded by our exports, for the American product now goes pretty nearly all over the world. Japan, formerly a large exporter, has, with her increasing population, become an importer.

Kadel & Herbert

Rice fields on a mountainside in the Philippines



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A rice-market in Darjeeling, India

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Harvesting rice under palm-leaf sunshades, Luzon, P. I.

Rice should never be stored in a damp place—nor the bags on a stone floor—as either procedure will cause it to deteriorate in appearance. That sold in packages or cotton "pockets," or bags, is, for sanitary reasons, generally preferable to the product sold in bulk.

Grocers in our northern states might well give rice more attention and more prominence. It is easily carried and can be made to earn a good profit. The trade in the South needs no advice on this point—for grocers there sell a lot—even moderate-sized stores carry large stocks of various grades, and feature it just as any other leading article.

The housewife who will direct part of her attention to the many possibilities in cooking rice, will be rewarded by an improvement of her table at a decreased expense. There is practically no limit to the ways in which it can be used—separately or with other articles—with meats, fish, vegetables, and fruits, and in puddings and many other desserts. It is particularly valuable for its aid in preparing dishes from "left-overs"—either hot dishes or cold, mixed salads.

It is not necessary to purchase "extra fancy" rice to obtain the food value sought. Any good grade will answer that purpose, and (with proper and suitable cooking) will also prove practically as good eating—even if not quite so attractive to the eye.

There are many cooks and therefore many ways of boiling rice! The first essential in any receipt is to wash it in several waters, or in running water, until the water is clear. After this step, there are numerous, differing directions. A good rule (except when using a double-boiler) is to add the rice to a large quantity of rapidly boiling, well-salted water (four or five quarts to a cup of rice is not too much), adding it slowly so as not to check the boiling. Then let it boil rapidly until soft—which is ascertained by pressing two or three grains between the finger and thumb. White rice will take from twenty to thirty minutes.

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A rice raft, South Carolina

Next drain off the water and steam until almost dry. The result of the observance of these simple directions will be rice that is thoroughly cooked, yet which has every grain separate.

Over-boiling makes rice pasty, and under-salting causes it to lack flavor.

The water drained off the cooked rice is useful for thickening soups, etc.

As brown rice, similarly treated, takes considerably longer to cook than white rice, it is best soaked in tepid water for an hour or so before boiling.

Puffed Rice is made by putting the grain into sealed cylinders, or ''guns,'' which are revolved for sixty minutes in a heat of 550° Fahr. The heat converts the grain moisture into steam—and when the ''gun'' is suddenly unsealed, the steam contained in each individual grain ''explodes,'' pulverizing its starch granules and ''puffing'' it to several times its original size.

RICE-BIRD. See Reed-bird.

RICE-FLOUR, ground rice, made chiefly of grain broken in milling. It is not suitable for bread baking but may be used for almost any other purpose for which wheat-flour is employed. It is excellent for puddings and pastry, and large quantities are utilized by manufacturing confectioners and ice cream makers.

RICE-MACARONI, an Oriental product of the same general style as solid spaghetti. It is made in various styles—most commonly in thin, beautifully white, vermicelli-like strands which are unique in being flexible, and which are usually cut into lengths of six to ten inches and tied in bundles. Manufacture is similar to that of spaghetti (see Macaroni) except that rice grains, steamed and then reduced to a pulp, take the place of the cold-mixed dough of wheat-semolina.

"RICE-MEAL," the rice bran removed in milling. Because of its high protein and fat content it is the most nutritious of rice by-products. It is used chiefly as stock-food. If (as it should be) fresh and free of husks it is good also for humans.

RICE-POLISH, that part of the grain removed in ''polishing.'' The bulk of the supply is utilized industrially, but it is a valuable food product of the same class as rice-meal.

RICE-SUGAR, a product of the same character as Corn-sugar (which see).

ROCAMBOLE, or "Sand Leek," a member of the onion tribe whose underground bulbs are smaller and milder but otherwise resemble Garlic (which see).

ROCKET, or Roquette, a rather coarse, weedy, garden plant. Its young leaves are much used in France and Italy as a pot-herb and for salads, but their horseradish flavor is too strong to be generally acceptable here. The whitish or creamy-yellow flowers of the mature plant resemble orange-blossoms in odor.

ROCKFISH, the general title of a large genus (*Sebastodes*) of Pacific-coast fishes. There are many species, among the most valuable being the red rockfish, the blackfish, the yellow-backed rockfish, the yellowtail rockfish, the rasher, the "Spanish flag," and the bocaccio.

ROE, the eggs of fish. Those chiefly used are of the sturgeon, paddlefish, shad, whitefish, mackerel, cod, haddock, lake herring, carp, and mullet. The salted roe of the sturgeon is known as CAVIAR (which see).

Almost equally good, but much less frequently consumed, is the soft roe (or milt roe, or buck-roe) of the male fish.

Both are high in food value, containing good percentages of protein, fat, and ash.

In northern Europe, the whole hard roe is slowly baked until firm and then sun-dried until almost stone-like—in that condition it will in a moderately dry climate keep for years.

ROGNONS de Coq, an euphemistic name for fowls' testicles, sold in bottles in fancy grocery-stores, both separate and mixed with *crêtes de coq* (cockscombs).

ROLL, in its most important food significance, a variety of fancy bread, generally in the form of small, pointed-oval, or round, or semi-cylindrical cakes, intended to be eaten hot for breakfast, etc. French rolls, Vienna rolls, and "milk rolls" are made from dough mixed with milk and water.

ROMAINE. See LETTUCE.

ROOT BEER, a refreshing beverage made by the fermentation of an infusion of roots, barks, and herbs, such as sarsaparilla, sassafras, spruce, wild cherry, spikenard, wintergreen, and ginger, with sugar and yeast. The flavoring, or extract, is retailed in convenient packages, each sufficient for about five gallons of "beer." It is the action of the yeast on the sugar which gives the slightly exhilarating quality (from the small percentage of alcohol produced) and the effervescence (from the action of the carbon dioxide).

ROQUETTE. See ROCKET.

ROSE-APPLE, or Jambrosade, the fragrant fruit of two East-Indian trees grown in California for their beautiful flowers and foliage. The fruit of one species is pear-shaped, one to two inches in maximum diameter, whitish or yellowish tinged with pink, and rose-flavored. It is insipid to the palate as a raw fruit, and over-dry, but is popular in the tropics as made into jelly, preserves, and confectionery. The fruit of the other tree is larger, red of skin, and inclined to egg-shape. It tastes a good deal like an apple.

ROSE EXTRACT, Hips, etc. *Rose extract* is a solution of attar, or essential oil, of roses. By United States standards, it should contain not less than 4%. *Rose fruits*, or *"Hips,"*—round, fleshy, and red—are not desirable for eating raw, but they can be made into good preserves. They are abundantly produced by the wild roses of the northwestern states. *Rose-leaf jam*, or *Candied rose leaves,* consists of the leaves, or petals, of rose-blossoms heavily sugared. The product has generally the consistence of semi-candied honey.

ROSEFISH, or Redfish, or John Dory, an orange-red, spiny-headed fish of the North Atlantic, caught in considerable quantities off the New England coast and northward. As taken it averages only a foot or so in length but it attains twice that size.

ROSELLE, or Red Sorrel, or Jamaica Sorrel, an annual hibiscus—a bushy plant, five to six feet in average height—whose seed-pods serve as a good substitute for cranberries in tropical and sub-tropical regions, making excellent jelly, resembling cranberry both in flavor and appearance. It is prepared by boiling the pods until soft, and then straining and adding sugar in equal quantity — proceeding then as for any other jelly. This—though the most distinctive product—is only one of many. The large, red, fleshy calyces (the parts surrounding the seed-pods) are also made into jam and sirup, and fresh cooked for pies; and the young stems of the plant furnish good jelly.

Less commonly seen, but of equal merit, is a yellow-calyx strain.

The roselle is cultivated to a considerable extent in Australia and has recently been introduced here.

ROSEMARY, a hardy, evergreen plant or shrub native to the south of Europe and Asia Minor, now widely cultivated. Its leaves, deep green above, white beneath, and curled at the edges—very fragrant and slightly stimulant—are occasionally employed for seasoning and in the manufacture of preserves. Their chief use is in perfumery.

ROYAN, a local French name for the Sardine (which see). Also a trade term for a packing of (1) especially small sardines and (2) small fillets of mackerel.

RUE, a plant whose bitter, pungent leaves are sometimes used for seasoning, chiefly in the South. Their odor is objectionable to many people, but they were formerly popular in household cookery and much prescribed medicinally.

RUSK, a title applied to various styles of light biscuits, small light cakes, and small shapes of slightly sweetened, twice-baked bread. Also to dried bread or plain cake browned in the oven and crushed or pounded into crumbs, to be eaten with milk, etc. The rusks which formerly constituted an important part of a sailor's diet were pieces of bread re-baked to make them dry, crisp, and longer-keeping.

RUTABAGA, or Swedish Turnip, or Turnip-rooted Cabbage, a vegetable grown chiefly for its large, turnip-like root, which develops partly under and partly above ground. In flavor it resembles the kohlrabi. The flesh is yellow in some types, and white in others. The title "rutabaga" is in some parts specifically applied to the yellow roots, the white roots bearing then the English vernacular name (for both kinds) of "Swedish turnip."

RYE (see the color-page opposite 558), a species of grain resembling wheat, but generally much taller in stalk, which is the principal cereal of northern Russia, Scandinavia, and northern Germany. It is very hardy and will grow in latitudes too cold and in soil too poor for wheat—thriving best, however, and being most productive, under conditions favorable to wheat. Its food value also is similar — the principal difference being a little less protein and a little more sugar and minerals. There are few clearly defined varieties under general cultivation here, the chief division being into "winter" and "spring" rye. North Dakota raises our largest crop.

Rye-flour is consumed in increasing quantities in the United States, chiefly by the foreign-born population but also to a growing extent among other classes. It makes good, though dark-colored bread. *Rye graham flour* is the whole unbolted grain, similar in style to true Graham wheat-flour. See *Rye bread, Pumpernickel,* and *Knackebrod* in the general article on Bread.

SABLEFISH, or "Black Cod," a valuable but long neglected food-fish of the Pacific Coast, with firm, white, flaky, richly flavored flesh and a high percentage of delicate, almost gelatinous fat. The average market weight is about fifteen pounds, but large specimens greatly exceed that figure. The old colloquial title of "black cod" is unfortunate as it has no relationship to the cod and its flesh is dissimilar.

Sablefish

SACCHARIN, a coal-tar product which is several hundred times sweeter than sugar but which possesses no food value, passing through the system unchanged. Its desirability or otherwise depends upon the circumstances of its use. If indiscriminately or unintelligently employed as a sweetener in place of sugar, the result is that the child—or the adult—is robbed of a desirable energy-food to which the digestive system has become accustomed, and for this reason its general family use should be strictly interdicted. It is true that the child may compensate itself by additional consumption of bread or cereals or other carbohydrate foods and thus suffer no serious deprivation, and it may indeed be directly benefited if a sugar-perverted appetite is thus turned to a more adequate consumption of protein and vegetable foods, but these are speculative exceptions.

A specific employment of saccharin that has been advocated as desirable is for the sweetening of summer beverages. The total individual consumption of cold sweet drinks during a hot day or afternoon, amounts in thousands of cases to a considerable quantity, the result being an excessive additional and unintentional consumption of sugar—at the very season when the smallest normal consumption is desirable—and a consequent upsettal of an infinite number of young — and older—stomachs! Such beverages (being consumed solely for their qualities of coolness and flavor) may, perhaps, better be sweetened with saccharin than with sugar.

The value of saccharin is also indisputable for diabetic, obese, and gouty patients, enabling them to satisfy their natural cravings for sweet-flavored foods without the injurious or undesirable results that might follow the consumption of sugar.

SAFFLOWER-SEED OIL, a light-yellow oil, the product of a thistle-like herb, one to three feet in height, with orange-red head, grown in the United States, southern Europe, Egypt, India, and China. Commercially, it is employed as a dye, frequently as a substitute for Saffron (see following). In India, it is used as an illuminating and culinary oil.

SAFFRON, a coloring agent highly valued for its great strength, the golden quality of its hue, and its freedom from anything injurious. If pure, it consists exclusively of the dried, orange-red stigmas and styles of a purple crocus (a single ounce representing about 5,000 blossoms), or a solution of them, but that commonly marketed is adulterated, frequently with turmeric—or complete substitution is effected by the use of safflower-seed. The adulterated and substituted products are decidedly inferior.

Saffron—in former days important medicinally — is now principally used in perfumes and for tinting confectionery. In some parts of Europe it is popular also as a general culinary ingredient. Spain is the chief commercial source of our supply.

SAGE, a shrubby plant whose tops and wrinkled, whitish-green leaves are extensively used, both fresh and dried, for flavoring soups, sauces, cheese, sausages, and other articles, and in dressing for poultry, pork, etc., because of its aromatic, bitter, and slightly astringent flavor. It is also in repute—much in excess of its merits—as a domestic remedy.

Sage grows wild in many parts of southern Europe and has been long under cultivation in all temperate climates. Of the numerous types, the green, broad-leaved varieties are the most favored in this country.

Dried sage is retailed in packages, cans, and bottles.

SAGO, a starchy food prepared from the pith of the trunks of several tropical palms, particularly the sago-palm (*Metroxylon sagu*) of the East Indies. From 600 to 800 pounds is not infrequently obtained from a single tree.

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The heart of a sago-palm

The sago-palm—which thrives best in low, marshy places—is thick-trunked and of medium height—up to about thirty feet. In its natural course, it fruits once, at from ten to fifteen years of age, and then dies. Just prior to fruiting, its trunk is gorged with starchy pith—which disappears in fruiting if it be undisturbed, leaving only a dead or hollow-trunked palm which has completed its cycle.

To obtain this pith for human use, the palm is cut down at the height of its gorged condition, and the pith extracted and grated to a powder, strained, and washed. The product thus secured is the crude sago of native consumption. For export, it is mixed with water into a paste and rubbed through sieves of various sizes—thus producing the small "pearl" sago, the larger "bullet" sago, etc. The smaller sizes cook more quickly and are therefore generally preferable.

Sago is valuable as a food, being both cheap and nutritious. It is especially pleasing prepared in the same way as rice pudding.

The ornamental "sago-palm" popular in small sizes in the North as a house-plant and in its full height (six to ten feet) as a central plant for Florida parks and gardens, is so called because its pith gives a kind of "sago," but it has no relationship to the commercial sago-palm. The female palm bears a large number of red, nut-style seeds which many people find pleasingly edible.

SAGUARO, or Suwarro, a tree-cactus (*Carnegiea gigantea, Cereus giganteus*) common in Mexico and the southwestern states. It consists generally of a single straight trunk, frequently one to two feet in diameter and from fifty to sixty feet high. The fruit, gathered from the bigger plants by means of long poles, is oval or oblong, and two or three inches in length, with green outer skin and crimson, rather insipid, pulp. It is locally consumed in large quantities both raw and preserved.

SAINT JOHN'S BREAD. See CAROB-BEAN.

SALAD. Salads were formerly confined to a few raw green herbs, but to-day they cover a wide range, practically all kinds of food being so served. They deserve yet more general recognition, for they offer a great diversity of food combinations that are very appetizing and particularly wholesome. They are especially valuable for the minerals and vitamins carried by the green leaves, roots, and fruits so freely used as components (see the general article on FOOD VALUES).

For their enjoyment, the best materials are, however, absolutely necessary. Neither the tastiness nor the food value of any combination is proof against the havoc that can be wrought by poor oil or vinegar.

Lettuce is generally accorded the first place as a salad-plant, but among the numerous other possibilities offered to us by nature and horticulturists are many which excel it in flavor and adaptability.

Prominent among a great number suitable for use either separately, or in combinations, are raw articles such as borage, celery, chicory, chives, cresses, cucumbers, dandelion, endive, fine-chopped mint, mustard-plant, nasturtium leaves and blossoms, minced young onion-tops, parsley, petsai, tomatoes, and nearly all kinds of fruits; and cooked articles such as artichokes, asparagus, beets, carrots, cauliflower, celeriac, oyster-plant, sea-kale, chicken, crab, crayfish, lobster, salmon, shrimps, tuna, and veal. BEAN SPROUTS (which see) are to most people a novel and pleasing addition.

It is not necessary to confine oneself to any special plant or other food or any set formula—almost any young crisp leaves of herbs or vegetables, aromatic or otherwise, can be made into a tasty salad if properly mixed with oil and vinegar and seasoned with salt and pepper—and the addition of a little fruit or left-over cooked vegetables or meat, cut in small pieces, will render it a dish worthy of anyone's appetite!

Meats, such as lobster, crab, and chicken, should be picked or cut into pieces about the size of small dice. They should never be minced.

SALAMI. See SAUSAGES.

SALEP, a starchy meal of Asiatic production obtained from the decorticated, cooked, and dried tuberous roots of several varieties of orchids. It is exported chiefly via Smyrna. Before grinding, it is generally seen in the form of small, oval pieces of a rather dirty, whitish-yellow; tough in texture, and with a slightly salt, gummy taste. When pulverized and mixed with boiling milk, it swells to a semi-transparent pudding-jelly, which is considered an excellent food for children and convalescents. In diluted form, with milk and sugar added, it was formerly sold from salep-stalls as a night and early morning beverage for London workmen. The salep-stalls, however, long ago made way for coffee-stalls. In the Orient it is used medicinally for nervous disorders.

SALERATUS, or Soda Saleratus. See the article on SODA.

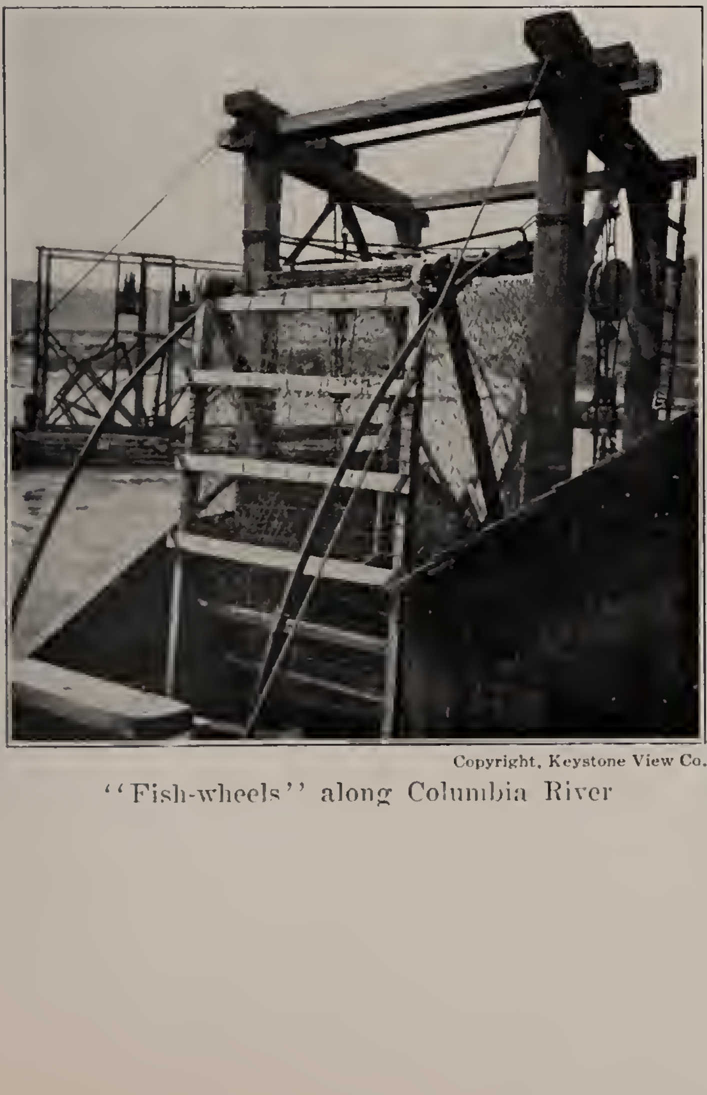
SALLY-LUNN, a sweetened "tea-cake" of English muffin style, named after its originator, a resident of Bath, England.

SALMAGUNDI, a mixture of chopped meat, fish (such as anchovies), onions, and various other articles, dressed with oil, vinegar, pepper, etc. The word is also used in other senses to indicate a medley or miscellany.

SALMI, a stew in which any kind of game, or domestic duck or gosling, is the principal ingredient. It generally includes mushrooms and truffles.

SALMON. The principal salmons are the Common (*Salmo salar*) of the North Atlantic, ranging on the American side northward from New York and frequently styled "Kennebec salmon" in the New York market, and those of the genus *Oncorhynchus,* which includes the chief Pacific Coast varieties. The Chinook species of the latter is shown on the color-page opposite 332.

The Common salmon—a big, handsome, symmetrical fish—has been famous in Old World literature for nearly 2000 years and was skillfully speared by Newfoundland Indians long before the Old World invaded the New, but the total catch on our side of the ocean is comparatively small to-day—the fresh fish is sold in the eastern markets from the middle of April to the end of September, but the bulk of the fresh and cured supply, and all the canned product, is of the Pacific Coast fish. Different indeed from those earlier days when the Atlantic salmon was most plentifully abundant in New England waters and a very important food source to the colonials



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"Fish-wheels" along Columbia River

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Dragging in the nets, Columbia River

of the seventeenth and eighteenth centuries.

The principal sources of the Pacific salmon are, in the order of the average annual output, (1) Alaska, now supplying about half the total, (2) British Columbia, (3) Puget Sound, and (4) Columbia River. About half of the "pack" is consumed in the United States and three-fourths of the remainder in the United Kingdom, Canada, and Australia.

The life story of the Pacific salmon is of dramatic interest, containing all the elements of romance—from its first fight against almost overwhelming odds, to its heroic struggle to perpetuate its race at the expense of its own existence.

The fish is an anadrom, living all but the beginning and the end of its existence in the sea. During his sojourn in salt waters, we must presume he enjoys life, even though in a somewhat strenuous fashion. He is often found mutilated, probably from combats with his kind and other denizens of the deep, but he evidently finds feeding good and life generally worth while, for by the time he is four years old or thereabouts, according to his species, he has developed into a magnificent fish weighing sometimes as much as a hundred pounds, and as handsome a creature as the water ever produced. The tragedy of his life comes when nature calls him to the spawning grounds, for that journey is one of the world's most remarkable examples of the impelling force of the instinct of procreation.

Every springtide, the mature salmon—both male and female — begin in great "schools" the return journey. The date and distance of the runs and the rate of progress, are regulated by the condition of the spawn. The earliest occur in February and March. The fish then travel to the headwaters of the rivers, many hundreds of miles up—a thousand miles inland some of them go, into the mountain streams of Idaho. Nearer spawning grounds are chosen for the later runs—which continue, in lessened numbers, into the autumn.

No natural obstacle can daunt the pilgrims—they leap obstructing boulders and charge the rapids with indomitable energy, renewing and redoubling their efforts if repulsed until they have won their progress onward, or die in the struggle.

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Dam and "fish ladder" on Rogue River, Oregon

When they finally reach the spawning grounds, they rest for two or three weeks. Then each female fish scoops a hole in the gravel in the shallow water and deposits her eggs there. The male fertilizes them, and then they are left to their fate—the fish have completed the duty to nature which they undertook when they left their ocean homes. And then? By this time they have lost the strength and beauty which distinguished them when they started on their journey—their glistening scales have disappeared, their flesh is flabby and dull, their skin disfigured with blotches. They linger around for a while and then they die—the last stage of the life of the great salmon is closed.

What of the spawn provided for at such sacrifice? The "fry"—tiny little creatures of queer aspect—emerge from the eggs in from 100 to 200 days after fertilization, the period depending largely upon the temperature of the water. Then in great quantities they fall prey to other fishes and many birds. The female salmon

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Tons of salmon on their way to the cannery

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Taking salmon from the trap, Columbia River

bears from 2000 to 5000 eggs, otherwise the species would long have been extinct, so fierce is the onslaught. The fry which survive develop into little salmon which travel down the river again into the ocean — a long journey, slowly made, with many stops, and again with heavy toll to other enemies along the route — thence into the ocean, to throw in their lot with a vast host of other marine creatures —devouring and devoured —to fight and grow lustily until, in their turn, as they reach maturity, they make the final up-river journey.

Nature had provided for all these enemies by the fecundity of the female salmon—and also for the destruction of many thousands of spawning fish by bears and eagles, and the blinding and otherwise maiming by gulls and terns of great numbers on their way upstream—but when to these depredations was added the catching by human beings, year after year, of a hundred million or more of mature salmon before they had spawned, she was unable to cope with the situation, and it seemed certain that before long the salmon would become as nearly extinct as the buffalo. That danger has, fortunately, been lessened by restrictions on the catch and annual artificial hatchings of millions of salmon eggs (see the article on Fish Culture).

Another important and interesting government work has been the construction of "fish-ladders" to assist the fish in climbing the falls or dams which obstruct their up-river journey. A fish-ladder is a series of very broad steps, each only a few inches in height, built up the side of a fall or dam. The salmon travel up them at their ease, and the protection of the step ahead slacks the rapidity of the current and gives them many rests in the ascent. Before these ladders were constructed, the fish were compelled to climb the falls at one dash, and thousands upon thousands of them were thrown back killed or maimed.

Canned Salmon. The fish for canning purposes are caught chiefly in gill nets, seines, or traps. "Wheels" are also employed, these being equipped with scoop-shaped dip-nets which pick up the fish and empty them into chutes which slide them into shore receiving-bins. The wheels are kept in motion by the river current.

The fish are next, with the least possible loss of time, carried to the canneries in steamers, boats, etc., and immediately started through the various processes. Nearly all the work is performed by machinery. First come a preliminary external washing, trimming, and dressing, then they go to cutting machines where revolving, circular knives cut them into pieces of any desired size for "tall," "flat," and "half-flat" cans, etc.

The principal recognized divisions of American canned salmon are into the five grades following—the first two being the choicest, and fluctuating or tying in price leadership, and the fifth being the lowest in quality. The "scientific" name of each grade is given, because the popular titles vary in different localities. The "sockeye" salmon of Puget Sound, for example, corresponds very closely to the "red" salmon of Alaska; and the "tyee," or "red spring," of Puget Sound and British Columbia, to the "chinook" of the Columbia River and the "king" of Alaska.

(1) ONCORHYNCHUS NERKA, the sockeye, or sockey, salmon (British Columbia and Puget Sound), blue-back salmon (Columbia River), red salmon, or redfish (Alaska), and nerka salmon, ranging from five to twelve pounds, the average being a little above the lower figure. The flesh should be blood-red and closely knitted, and the oil heavy and red.

(2) ONCORHYNCHUS TSCHAWYTSCHA, the chinook salmon (Columbia River and southern rivers), king salmon (Alaska), quinnat salmon (southern rivers), tyee salmon (Puget Sound), and red spring salmon (British Columbia)—very large fish, from thirty pounds up—the average being about twenty-two pounds. The flesh is, typically, of a deep pink—a cross between red and pink, in large flakes and with rich oil.

(3) ONCORHYNCHUS KISUTCH, the coho, or cohoe, salmon (Alaska, British Columbia, and Puget Sound), silver salmon, or silver-sides (Columbia River and southern rivers), and Medium Red (Alaska), averaging a little larger than Class 1. The flesh is firm, varying from pale to deep pink, with oil fairly plentiful but generally of little color.

(4) ONCORHYNCHUS GORBUSCHA, the humpback salmon (British Columbia and Puget Sound), pink salmon (Alaska), and gorbuscha salmon—very small, averaging about four pounds. The flesh is sweet, but soft and pale pink.

(5) ONCORHYNCHUS KETA, the calico salmon, keta salmon, dog salmon, and chum salmon, averaging about eleven pounds. The flesh is whitish or light-yellow and the liquid contains little oil.

The spring run is commercially the most important, as the fish can then be taken before the growth of their reproductive organs has reduced the fine quality of flesh that they bring in from the sea.

SALOOP, a tea made of sassafras chips (or leaves and twigs) or aromatic herbs, drunk with milk and sugar, formerly sold in London in the same manner as "salep" used to be and coffee is now. It was also considered a valuable remedy for many ailments, including chronic alcoholic inebriety.

SALSIFY. See under the heading of OYSTER-PLANT.

SALT. Salt is essentially chloride of sodium, any other ingredients being incidental impurities. The four chief methods of obtaining it are by evaporation of the brine from wells sunk into salt beds; by mining; and by evaporation of sea water and of the brine of natural brine-springs.

The greater part of the salt used in the United States is obtained from domestic brine-wells, but mining of the dry salt has, with changed conditions and heavy chemical demands, again come into vogue and has in recent years rapidly increased its output. The chief producing states are Michigan, New York, Ohio, and Kansas. Next, but a considerable distance behind, come California and Louisiana.

In operation, a brine-well is drilled to the necessary depth, and water is forced through pipes into the salt beds. In deep beds, the general method is to use a three-inch pipe inside a six-inch pipe, the three-inch pipe going to the bottom of the salt layer and the six-inch pipe stopping at its upper surface. The fresh water is pumped down the small pipe and dissolves the salt with which it comes in contact, being pumped back as brine through the large pipe.

The brine next passes through a succession of heaters, each with higher temperature, the last at about 280° Fahr. In this process, the lime (found in all brines) and other impurities are precipitated. It is next filtered and finally passes into the evaporator, where the water passes off and the salt forms. The first quick evaporation produces fine table-salt. The second, slower evaporation, produces the thin, salt flakes known as dairy-salt, for butter, cheese, meat curing, etc.

The product is finally dried, sifted, and separated into various grades and packed in boxes, bags, and barrels.

Salt that is mined—i.e., taken dry out of the beds—is known as "rock salt." It is ground in crushers and sifted and refined to the numerous grades found on the market.

"Solar salt" is produced by sun-evaporation. In manufacture from the Onondaga salines of New York State, the brine is placed in vats to which lime is added to precipitate the magnesia, and thence it flows into wooden trays, where it is slowly evaporated by the sun's rays, forming into large, cubic-shaped crystals.

The water of the ocean contains on an average nearly 3% of salt by weight. The Mediterranean Sea contains a higher percentage, and Great Salt Lake and the Dead Sea are famous for their still larger proportions, their waters being as a result so buoyant that it is impossible for a person to sink in them.

International

Mining salt on Avery Island, Louisiana

Salt is a condiment that pleases the palate of every race of mankind, and many other mammals. Savage races have lived without it, but wherever it has been obtainable, even at great expense and much trouble, human beings have sought and fought for it. The New York Indians obtained it at Onondaga long before the settlers commenced its manufacture, as did the Indians of the West from the vicinity of the Arkansas River.

One must ascribe this chiefly to the zest it gives to foods rather than to the specific action of its chemical constituents. Various foods and diets are deficient in sodium and chlorine, but very few, if any, require the addition of such considerable quantities as are conveyed in the customary salting of foods in both cooking and eating. As, however, this addition works no harm to the average individual, the zest—and its favorable effect on digestion—are sufficient justification. But neither, in normal cases, is complete abstention harmful, once the acquired or inherited taste for salt has been lost or conquered. Excessive use may prove actively harmful by retarding the assimilation of food.

A diet which contains a goodly proportion of raw or roast or broiled meat (not stewed meat unless its liquid is fully consumed), fish, milk, and eggs, carries with it a particularly plentiful supply of sodium and chlorine. Less well furnished is one in which vegetable products largely predominate—and hence, generally, a more pronounced craving for salt. The lines are not closely drawn though—for few people can enjoy an egg until it has been liberally salted!

Salt is frequently mentioned in the Bible—the expression "ye are the salt of the earth" is familiar to all readers—and legislation concerning it is found in the early days of ancient Rome. Soon after the foundation of the city, the salt works of Ostia were established at the mouth of the Tiber, but the price demanded

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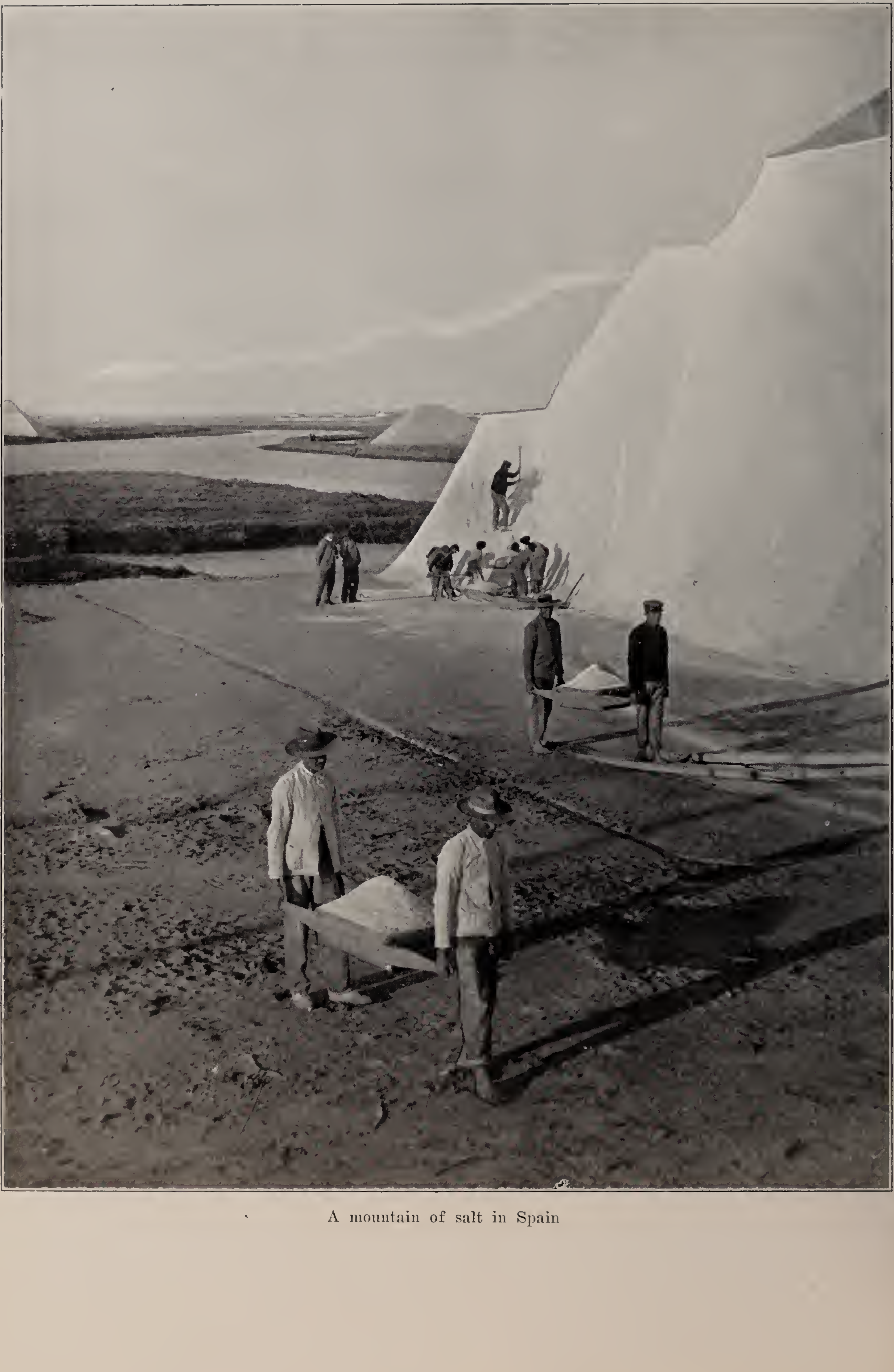
Gathering salt from evaporating basins along the Bay of Biscay



A mountain of salt in Spain

was so extortionately high that about a hundred years later the right of vending was transferred to the government, and private individuals were forbidden to engage in its preparation. The revenue derived was very great and contributed materially to the support of the Imperial city.

Venice also was noted for her salt-works.

The first American factory was that started in Virginia in 1633, sea water being used. Eight years later, Massachusetts gave the exclusive right to manufacture salt in that colony to Samuel Winslow—though, despite this grant, works were set up all along the coast, the product being in great demand to supply the fisheries.

Many attempts were made to obtain salt from springs—in Pennsylvania in 1784, in New York in 1788, in Louisiana in 1791, in what is now West Virginia in 1797, and in Ohio in 1798. The first efforts met with only small success and up to 1812 most of our domestic salt continued to be drawn from ocean water. Since that date, conditions have been entirely revolutionized.

The Onondaga salines in New York State, situated near the towns of Syracuse, Salina, and Geddes, were first worked in 1788 or 1789, but were discovered as early as 1654 by French Jesuits who were prosecuting their perilous mission in the countries of the Onondagas and Iroquois.

California began her harvest in 1852 with sea water, and Utah in 1847 on the shores of Great Salt Lake. Kansas made its first salt from the marshes, but in 1887 a body of rock salt was found by prospectors for petroleum, and extensive mines were

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The great salt-fields of Solikamsk, Asiatic Russia developed. On Avery Island, Louisiana, a similar rock vein has been known and worked for more than a hundred years—the Confederates got twenty-two million pounds from it in eleven months during the war. Michigan bored her first well in 1859, at East Saginaw.

There is no danger of the race ever having to do without salt. Even if the ocean were not on every side, various parts of the world—including this continent—offer practically inexhaustible land deposits and supplies of it.

Salt has long been the synonym for piquancy of wit—hence the term "Attic (Athenian) salt"; and of liveliness and buoyancy—Shakespeare says: "Though we are justices and doctors and churchmen, we have some salt of our youth in us." It was formerly considered a very unlucky omen to upset the salt-cellar at the table, and to sit at the table "above the salt" was a position of honor, the old custom being to place a salt-cellar in the middle of the table, the places above which were assigned to the guests of distinction, while those "below the salt" were for the less highly regarded, dependents, and servants. Hence the expression of Ben Jonson, "His fashion is not to take knowledge of him that is beneath him in clothes. He never drinks below the salt."

Salt should always be kept in a cool, dry place.

SALTPETER, or Niter, a nitrate of potassium. It is the principal ingredient in gunpowder and has various other industrial as well as medicinal uses. It is valuable in meat preserving—the use of small quantities in the curing of hams, bacon, (corned) beef, and sausages imparting or retaining an attractive red color. The principal importations are from Chile and India. It is also made artificially by treatment of the nitrates resulting from the mixture of animal refuse, etc., with quicklime.

SALZSTANGEN, a Vienna-style small roll sprinkled with salt—and also frequently with poppy-seeds.

SAMOVAR, a Russian urn, of copper or other metal, for serving boiling water—especially one employed in making tea—see illustration in the article on TEA and also reference under the subhead of *Tea analysis and its use as a beverage.* The tea may be made either in a pot or in the cups or glasses in which it is to be served, the boiling water from the samovar falling on the dry tea-leaves placed in them. In Russia, the samovar is generally heated by charcoal.

SAMP, hulled Indian corn, whole or in large size if broken—as "whole-kernel" and "half-kernel" samp. The term is also applied to a porridge made of such hulled corn, and, locally, to large-size HOMINY (which see).

SANDWICH. That most useful article, the sandwich, which offers its advantages in hundreds of forms and in all grades and conditions of life—from the newsboy's lunch-counter up to the most splendid "spread"—and which until the invention of the dining-car was the chief, and often the only, mainstay and support of the traveler, was invented (though without premeditation) about the middle of the eighteenth century by the fourth Earl of Sandwich, an inveterate card-player—who, in order that he might not lose a minute from the game, told a servant to bring in a slice of meat between two pieces of bread, so that he could eat it without either knife, fork, or plate while he continued to play. The pleasing flavor and convenience of the combination resulted in his repeating the order both for himself and his friends. The idea spread from house to house, dubbed a "sandwich" from the name of its inventor, and as such it is still enjoyed in all countries and climes.

SAPODILLA, or Sapodilla-plum, or Sapodilla-pear, or Naseberry, the best known of a noteworthy group of tropical American fruits which includes also the Mammee Sapota, the Star-apple, and the Ti-es, described elsewhere in this volume. It is borne by the sapodilla-tree (see the color-page facing 99), which furnishes the chicle converted into Chewing Gum (which see). It looks like a cross between a potato and a russet apple—but the soft, rough-grained, greyish or yellowish pulp has a delicious flavor, either raw or cooked.

Sapodillas

The sapodilla, or "dilly," is grown on the Florida Keys and imported from Mexico and the West Indies for southern markets—especially for those of southern Florida. It is also seen with moderate frequency in high-class stores even in northern states. Average-sized fruits generally contain two large seeds, but there may be none or several. In the market, they are usually graded by size and shape—as large, medium, and small; round, flat, and long.

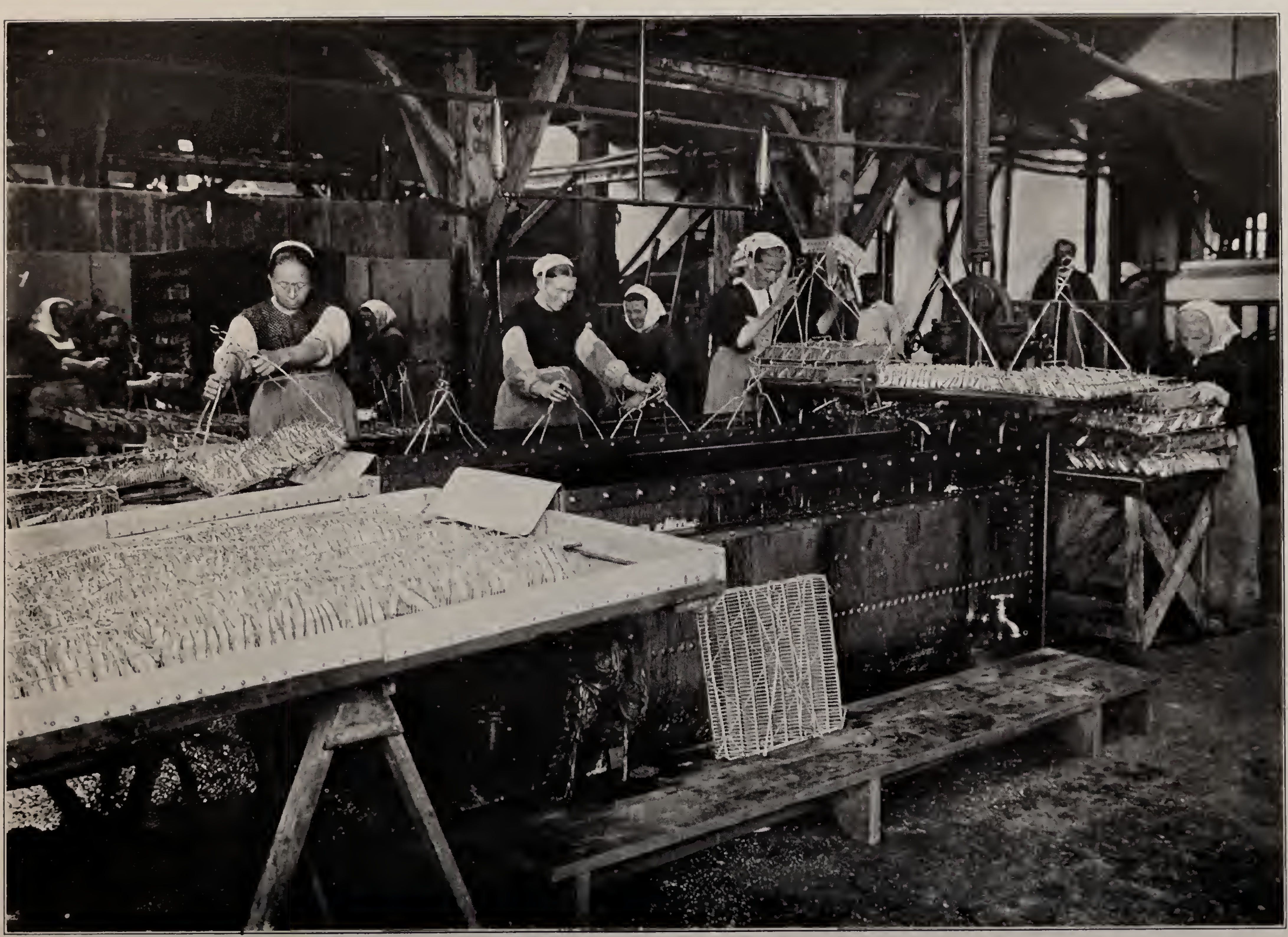
The White Sapota (which see) is a fruit of an entirely different order.

SARATOGA CHIPS. See Potato Chips.

SARDEL, or Sardelle, a herring-style fish of the Mediterranean, similar to the sardine and preserved in the same manner. The names are sometimes used as interchangeable.

SARDINE. The title "sardine" was originally applied to the young of the small Mediterranean pilchard, a fish nearly allied to the herring, caught off the island of Sardinia, but it long ago overleapt that restrictive definition, first adding young pilchards taken off the coasts of France—the famous French sardine!—and later the young of divers other clupeoid fishes caught in many other parts of the world—especially, insofar as it concerns us, off Norway and Portugal and our own coasts.

The French fishing season varies in different parts. In the Mediterranean, it extends over the entire year. On the shores of Brittany, the center of the French



Cooking sardines, France

industry, it is confined chiefly to the months of September and October. The fish frequent the Brittany waters throughout the entire summer—remaining until late in the fall—but when they first arrive they are thin and poor and unsuitable for canning. As the season advances they improve in quality and are fat and in good condition from September on. Those caught earlier are generally salted or consumed fresh by local communities.

To attract the little fish to the vicinity of the nets, large quantities of bait are scattered on the water—that chiefly used being the salted eggs of cod, haddock, and mackerel, mixed ordinarily with peanut meal or flour to decrease the expense. As many as a hundred thousand have been taken in a single net.

The French fisherman's great aim is to land the catch as speedily as possible to insure their absolute freshness—and as a consequence they are often at the canneries within an hour or two after capture. Should the failure, or unfavorable direction, of the wind threaten to delay the arrival of the sailing-boats and hence impair the quality of the fish, the crew row back to port.

As soon as the fish reach the factories, their heads and viscera are removed and the dressed bodies are sorted by size into large tubs of strong brine—where they remain for about an hour. They are next placed in small, wicker baskets and washed in either fresh or salt water for a few seconds, to remove loose scales, dirt and undissolved salt. Then comes the drying—preferably in the open.

For open-air drying, the fish are arranged by hand, one by one, in wire baskets, or trays, each holding about one hundred and fifty of medium size, placed on wooden frames or racks. The distinctive feature of the trays is their division into about seven V-shaped crosswise compartments, in which the fish are placed in regular rows with their tails upward, so as to promote the escape of water from the abdominal cavity. They remain thus for a variable time, depending on their size and the state of the atmosphere, the usual period in favorable weather being one hour.

In damp, foggy, or rainy weather, they are dried indoors by artificial heat, less time being then required.

After drying, they are taken in the same wire baskets to the cooking room and immersed in boiling oil, in open vats of various sizes and construction. The oil immersion usually lasts about two minutes.

The baskets are next removed to a table or platform with an inclined, metal top, where the surplus oil is allowed to drain off, and are then taken to the packing-room, where the fish are filled into the tin cans so well known to the consumer.

The kind and quality of oil vary with the grade of the packing. Native olive oil, from fairly good to the very best, is employed for fine grades, either plain or blended with or into various sauces. Cut truffles and pickles, and spices and herbs such as cloves, laurel-leaves, thyme, and fresh tarragon-leaves, may be added to, or with, the oil. There is a limited quantity put up in melted butter. For cheaper packings some establishments use peanut oil for both cooking and canning; in others, the cooking may be done in peanut oil and the cans filled with olive oil—or vice versa. Cottonseed oil is also largely employed.

Some of the finer qualities are canned without bones, the extraction being usually made after semi-cooking so as to avoid tearing the flesh. Boneless sardines are further marked by the fact that they lose their tails in the operation.

The French sardine is a handsome little fish, and its beauty is not entirely lost in canning. In the water, the back is of a greenish color; out of it the upper parts are rich dark-bluish, contrasting strongly with the silver and white of the sides and abdomen. The scales are very easily detached, but their loss does not detract seriously from the appearance of the fish, as the skin is thick and has a uniformly brilliant silvery color. At maturity (which is past the age for the canned fish) the Mediterranean type reaches a length of about 7½ inches. His cousin of the west coast grows a third larger.

French sardines, as a rule, improve with age after packing, and are at their best at from four to six years in the can. Many particular establishments will not sell stock less than a year old, as that time is considered necessary for the proper blending of the fish, oil, and flavoring.

Norwegian Sardines, or *Brislings,* are sprats (see SPRAT). The best grades are very good and the industry has grown enormously during the past few decades. Importations to this country are now greatly in excess of those of the French product, and the demand is steadily increasing.

Portuguese Sardines are chiefly young pilchards. Much of the output is of high quality. In recent years Portuguese imports also have passed those of French sardines, though they have not reached the total of the Norwegian.

American Sardines. The canning of domestic sardines, in oil, mustard, and otherwise, is an important business, and large quantities are consumed. On the Atlantic coast the small herring is used, and on the Pacific various young fishes—chiefly the "California Sardine" (*Clupanodon cœruleus*), which closely resembles the Mediterranean sardine in character and flavor—reaching, though, at maturity a full twelve inches in length. Machinery does much of the work performed in Europe by hand. The fact that domestic sardines fail to obtain the high prices and favor of the imported product is not due to any noteworthy differences in the fish themselves—they are in many cases fully as delicate—but to the extraordinary care exercised by the leading European canneries to achieve the finest possible result. With similar care, there seems no reason why the American sardine should not be rated as highly as any other packing.

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Drying sardines on the beach, Beppu, Japan

Smoked Sardines are gaining in favor. They are both of American catch and imported from Norway and elsewhere, put up in oil or otherwise.

The West Indies, Chile, India, Japan, New Zealand, and other parts of the world also engage in the industry, using small fishes of various kinds, chiefly in Pacific Countries, of the same kind as that caught off our Pacific coast.

SARSAPARILLA. True sarsaparilla extract is made from the long, thin, dark-brown, and bitter-flavored rootstocks of several species of tropical smilax. It is largely used medicinally as well as in the manufacture of ''soft'' drinks. In the beverage which bears its name, its natural bitterness is modified by the addition of oil of wintergreen or other flavors. Native sarsaparilla, or ''wild sarsaparilla,'' is a different plant—a small perennial herb of Canada and the eastern states—but with long, aromatic roots that are similarly employed.

SASSAFRAS, the spicy bark of both the trunk and root, especially of the latter, of *Sassafras variifolium,* a large, ornamental tree of the laurel family. It is employed medicinally as ''sassafras tea''—a decoction of its oil—and in confectionery, perfumery, and dye-manufacture.

The twigs, leaves, and leaf-buds of the sassafras-tree have also been long and variously used. Their flavor and large proportion of mucilaginous matter have earned them repute for flavoring and thickening soups (see GUMBO FILÉ), and in many sections have held them (and the bark) in high esteem among successive generations for the brewing of domestic ''sassafras tea''—chiefly as a ''spring medicine,'' but in addition, at several periods of American history, as a substitute beverage in place of ordinary tea. See also SALOOP.

SATSUMA, a small mandarin, or ''tangerine,'' orange (see ORANGE).

SAUCES. The most important commercial sauces are blended extracts of condiments, vegetables, fruits, etc., and (generally) vinegar, for use with meats, fish, soups and various other foods. They have been employed for culinary and table purposes since the time of the ancient Romans.

Sauces of the Worcestershire kind, if of good quality, generally have SOY (which see) as their chief character ingredient. A typical formula of Worcestershire-style includes, in addition to soy and vinegar, a considerable percentage of lime juice, onions, and tamarinds, and small quantities of garlic, fish (as anchovies or pickled herrings), red chilies, and spices. The product, after cooking, is strained through fine hair-sieves. Leicester Sauce resembles Worcestershire in general style but is considerably less pungent.

Other commercial examples are Anchovy Essence and similar types, Catchup, Chili Sauce, Tabasco, etc.

Professional cookery includes a great variety of sauces. The two chief fundamental kinds are ESPAGNOLE, which serves as the stock, or basis, for many brown sauces, and VELOUTÉ, the chief white sauce. Both of these are described in their alphabetical positions. Béarnaise, Béchamel, Hollandaise, and a number of others are listed in the dictionary of *Culinary Terms* in the APPENDIX.

Cookery also supplies ''mint sauce'' and similar articles, and popular usage appends the term ''sauce'' to cooked fruit pulp, as apple sauce and cranberry sauce. A ''hard sauce'' is one (as largely of sugar) that is not liquid.

SAUERKRAUT, a German preparation of pickled cabbage. Close heads of white cabbage, the outer leaves and cores removed, are cut in fine shreds, mixed with salt in tubs or tanks (sometimes also with pepper and other spices—as caraway-seed) and allowed to ferment. It is then canned, or saturated with strong brine and packed in barrels. It is eaten in various ways, generally boiled or braised with meats. Previous to cooking, it is squeezed as dry as reasonably possible. If it is too sour, it should be washed—as should all bought sauerkraut of any condition.

Sauerkraut should be kept in the cellar or other cool place where the temperature is not above 50° Fahr. and should not be allowed to become dry—it should be moist all the way through all the time. Evaporation may be offset by the addition of salted water.

SAUREL, or Horse-mackerel, or Scad, a Pacific-coast fish (*Trachurus symmetricus*), which reaches two feet in length and is considered fairly good eating.

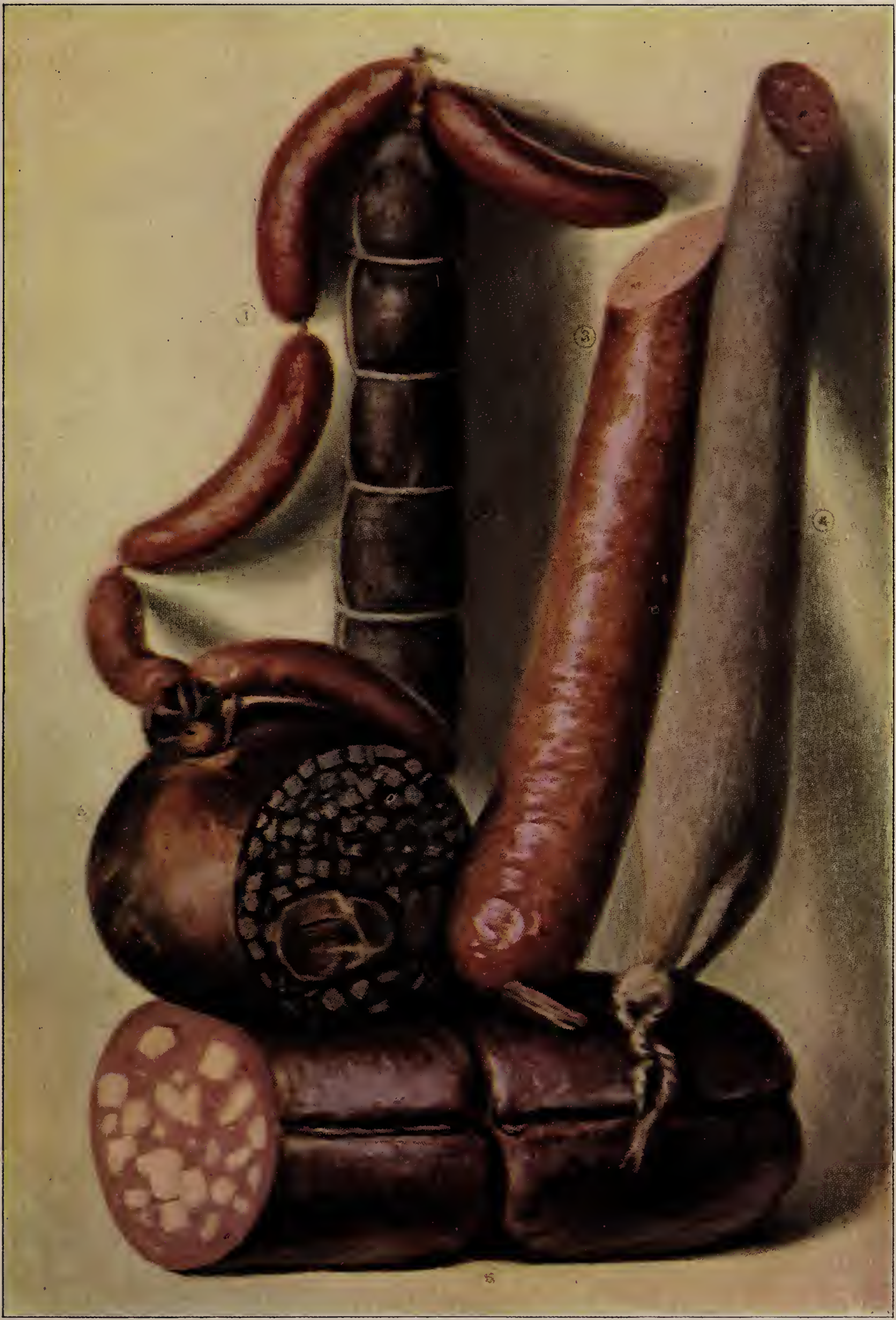
SAUSAGES, products of varied styles which consist essentially of chopped meat, generally beef or pork, or both, cured, spiced, and stuffed into beef or sheep or hog casings. They may be marketed either raw or cooked; and fresh, or dried and smoked, or simply air-dried. Commercially, in the large packing-houses, they are made chiefly of the trimmings of hams, etc., but choice grades of special manufacture may be of prime whole cuts. Cheap kinds consist largely of head-meat, and usually contain a "binder" of potato-flour, rice, bread or cracker-meal, or other similar articles. Curing signifies commonly the addition of sugar, salt, and a little saltpeter to the coarsely chopped meat and then allowing it to rest for a few days. It is generally followed by a second finer chopping. The saltpeter is used to retain or enhance the red color of the fresh meat. Smoking is identical in process with that for Ham (which see) except that the time required is shorter. The casings are usually the (thoroughly cleaned) intestines of steers, sheep, and hogs. If the casings are to be eaten (as commonly with frankfurters), sheep's should be employed, as they are much more tender than those of beef or pork.

There are two main divisions of sausages—(1) Dry, or "summer" (as most cervelats and salamis, and sausages such as chorizos), which will keep for a long time without refrigeration if held in a cool, dry, dark place; and (2) Fresh (as bolognas, frankfurters, head-cheese, and fresh pork sausages), which should be held in the refrigerator until required for consumption. The latter class should be sold and consumed as fresh as possible. A number (as capacola, coppa, Goethaer cervelat, mortadella, peperoni, and several salamis) are marketed in both styles in order to suit the public's varied tastes.

Some sausages are eaten as purchased, without additional cooking—often nearly raw; others are cooked for varying periods before serving. It is generally better to err on the side of over than under cooking, as there is always the danger of trichinæ in pork that has not been thoroughly permeated by strong heat (see article on Trichinæ) unless the salting has been exceptionally heavy.

The output of large establishments is closely safeguarded by federal, state, and city regulations and inspection, and freezing for a considerable period at a very low temperature sterilizes any of their products which are not thoroughly cooked, but this protection is not universally applied and retailers are wise to handle only sausages made by concerns with thoroughly established reputations for cleanliness and wholesomeness of preparation.

The following list of the most popular kinds names the principal ingredients of their general manufacture in high-class establishments. Customs and formulas vary widely, however. Those not referred to in the preceding pages as "dry" are com-



(1) Frankfurters
(2) Salami
(3) Bologna
(4) Cervelat
(5) Blood Sausage
(6) Mortadelli
½ Diameter

monly of the "fresh" class. The color-page facing 462 shows (in reduced size) blood-sausage, bologna, cervelat, frankfurters, mortadella, and salami.

Blood Sausage, or Blood Wurst, principally fat pork cut into small dice, together with some finely chopped lean pork, beef or hog blood, and spices, stuffed into beef middle casings, with three or four pieces of hog tongue added to each sausage, and boiled. The dark color is due to the blood content.

Bologna Sausage, named from the town of Bologna, Italy. Practically all of our supply is of domestic make. The (comparatively) small importation is from both Italy and Germany. *Beef bologna* usually consists of beef, veal, and pork trimmings chopped fine, spiced, stuffed into beef "middles," "rings," or "bungs" (very wide casings), cooked, and smoked. *Ham bologna* of high grade contains large cubes of lean pork-shoulder or shoulder butt.

Bockwurst, a title applied to small sausages formerly served with Bock Beer.

Capacola, an Italian sausage, chiefly of pork butts, flavored with sweet Hungarian peppers, cooked and air-dried.

Cervelat, similar to Salami in preparation, but commonly chopped finer. It is put up in hog and beef casings and smoked. The numerous special kinds include *Goethaer,* generally of pork only, very lean, fine-chopped, and dry; *Brunschweiger,* fat, coarse, and dry; *Thuringer,* often specifically a fresh cervelat; *Holstein,* coarse-chopped, in horse-shoe shape; *Farmer,* coarse-chopped, similar to Holstein but in straight lengths; *Goteborg,* a Swedish make, rather coarse-chopped, salty, and heavily smoked; and *Landjaeger,* Swiss, small and heavily smoked.

Chorizos, a Spanish sausage, air-dried, a good deal like a frankfurter but highly spiced and hot to the palate.

Coppa, similar to capacola but much hotter, chilies or cayenne pepper taking the place of the sweet peppers.

Frankfort Sausages, or "frankfurters," a mixture (if of fine quality) of about three-quarters lean beef and one-quarter lean pork-shoulder, spiced, stuffed into sheep or narrow hog casings and well smoked. They should not be kept long, as they readily become dry and unpalatable or tend to sour. A hot frankfurter should break open when bent and show plenty of juice.

Garlic, or Knoblauch, Sausage, made in the same way as frankfurters, with more garlic used and generally put up in shorter, thicker style.

Goose Liver Sausage, finely minced, parboiled calf's liver and pork, roasted and spiced, containing pieces of goose liver about one inch square, filled into very wide hog casings. If made of goose livers exclusively, the price is much higher, but the fresh product then compares favorably with the imported pâté de foie gras.

Head-cheese. Salt-cured hog's head and rinds (the latter for their jellying property) cut into dice or (some of it) into long, thin strips, flavored and spiced, stuffed into hogs' stomachs or canvas bags and cooked. It is sometimes finished by smoking. Tongue head-cheese has tongue added—either whole or cut.

Lachsschinken, two trimmed, boneless pork-loins, mild sweet-cured, faced and pushed into large beef casings, sixteen inches or so in length, pressed, tied with strings, dried, and lightly smoked.

Liver Sausage, or Pudding, hog livers and pork trimmings (with sometimes other meats added) variously flavored and seasoned—with onions, pistachio-nuts, etc.—and put up in ring and straight casings of several sizes.

Jacques Boyer, Paris

A French sausage-drying room

Lyons Sausage (*Saucisson de Lyon*), exclusively of pork—four parts of extremely finely chopped lean and one or two parts of fat in small dice, with spices and garlic, stuffed into wide hog casings of about eighteen inches in length, and air-dried.

Mett Sausage, chopped fat pork, spiced, cooked, filled into beef casings and smoked. It is popular spread on bread, hence its colloquial title of "smierwurst." It is generally made from the remnants after preparing cervelat or salami. The finer varieties bear special names, as Brunswick or Thuringian Mett.

Mortadella, pork and beef chopped extra fine, with cubes of pork fat added, spiced, stuffed into calf or beef bladders, cooked, and smoked or baked. Those of very careful Italian manufacture are smoked by a fire of beech or oak shavings mixed with juniper brush.

Peperoni, a very hot and highly spiced, air-dried Italian beef and pork sausage.

Polish Sausage (Kolbassy), similar to frankfurters in preparation but chopped coarser, highly flavored with garlic and spices, and filled into hog casings, eight to twelve inches in length and one-half to three-quarters of an inch in diameter.

Pork Sausage, or Bratwurst, finely chopped, lean, fresh pork trimmings, with spices such as nutmeg, ginger, cloves, and mace, and herbs as sage. For fancy trade, they are generally stuffed into sheep casings in very small links; for regular trade, small hog casings are employed. The mixture is also retailed in muslin bags as "sausage meat."

Salami. There are many Salamis—roughly divisible into Italian (Alessandri, Alpino, Arles, Genoa, Milan, Sicilian, Southern-Italian, etc.), Hungarian, and German.

The Italian consist commonly of about two-thirds lean pork, coarse-chopped, and one-third lean beef, fine-chopped, moistened with red wine (or grape juice), flavored with garlic and various spices, stuffed into beef casings, and air-dried. Hung in a suitable place, they will keep for years. *Arles* salami is especially coarse and *Milan* is particularly fine chopped.

German and *Hungarian Salamis* are less highly flavored and are smoked in place of air-drying.

Summer Sausage. See reference in the prefatory paragraphs of this article. The title is also used specifically for a sausage of cervelat or salami type.

Tongue Sausage, largely of blood, with tongue added; usually stuffed in a hog's stomach.

Vienna Sausages, or Wienerwursts, like frankfurters, but with the ends cut off and very small.

SAUTÉ ("tossed"). See subhead in the general article on Cookery.

SAVORY, or Summer Savory, a small, hardy, annual herb, erect in character, with strong, agreeably aromatic smell and flavor. Its smooth leaves are in common use, both fresh and dried, for flavoring soups, dressings, etc. Dried savory is retailed both loose and in cans and bottles.

Winter, or Mountain, Savory is similarly used, but it is of a different species—perennial and low growing.

SAVOY CABBAGE, a kind of cabbage, in numerous varieties, with rough, curly or crimpled leaves, and generally loose-centered. The flavor is usually milder than that of the ordinary cabbage. As the plants are very hardy they are especially suitable for winter use.

SCAD, a title given locally to a number of different fishes, especially the Saurel and the Mackerel-scads (which see).

SCALLION, a name applied to any onion which, because of age or other reason, has developed no bulb. Also, another title for the Shallot (which see).

Emptying the scallops on the culling board

SCALLOP, a bivalve shellfish with roundish, ribbed shells, about 3½ inches in maximum diameter, very plentiful on the New England coast and found in shallow waters along the entire Atlantic and Gulf shore-line of the United States. It is in season from the middle of September to the end of March. Only the muscle, or "hard part," used for opening and closing the shell, is eaten, the remainder, called "the rim" by fishermen, being very soft and considered unfit for food.

The "sea," or "giant," or "smooth" scallop—equally good eating but nowadays scarce—is an inhabitant of deep waters and grows to many times the size of the ordinary scallop. The edible part may reach three inches in diameter and a weight of nine or ten ounces. It ranges the greater part of the North Atlantic coast, being chiefly taken off Maine.

SCALLOP-CRAB, a tiny crab (of the same genus as the oyster-crab) which makes its home within the shells of the scallop.

SCOLYMUS. See *Spanish Oyster-plant* in the Oyster-plant article.

SCONE, originally a round, thin, Scotch "cake," generally of oatmeal but also sometimes of barley or wheat, cooked on a griddle and (usually) cut into four pieces for consumption. The title is now applied to a round or three-cornered home-made "biscuit" of dough or batter mixed with sour milk or buttermilk and bicarbonate of soda, either oven or griddle cooked.

SCRAPPLE, a Pennsylvania dish which originated among the Germans. The genuine old-fashioned formula calls for a young pig's head boiled until the meat is readily separated from the bones. The meat is then minced very fine and put back into the soup, the latter being afterwards thickened with buckwheat or cornmeal, and seasoned with spices and herbs. When of the consistence of mush, it is run into pans to cool, to be later sliced and fried for the table.

The scrapple of general consumption is made of cornmeal and miscellaneous pork trimmings.

SCREW-BEAN. See Mesquit.

SCROD. See subhead in the article on the Cod.

SCUPPERNONG, the most widely cultivated of muscadine grapes (see Muscadine). It grows commonly in small clusters of two to six berries—sometimes in single berries and occasionally in bunches of fifteen or more. The berries are large—frequently averaging more than three-quarters of an inch in diameter—and vary from a russet-dotted or blotched green to reddish brown, according to exposure and other circumstances. They ripen individually and are in some vineyards gathered from the ground as they fall from the vines. In others, they are picked from the vines as they mature.

Scuppernong grapes

The scuppernong makes good grape juice, jellies, sirups, and paste. It is not a particularly good table-grape—its flesh is sweet, juicy, and soft, but is marked by a musky odor and flavor which is displeasing to some palates, and it is more perishable and consequently more difficult of transportation than other varieties. Large quantities were formerly utilized in the making of wine.

The vine has in the past been generally grown in overhead style, spreading enormously from a single central trunk, and seldom pruned, extending its arms in all directions, canopy-fashion, supported by posts, and often covering a considerable area. Modern cultivation favors a restricted growth on trellises.

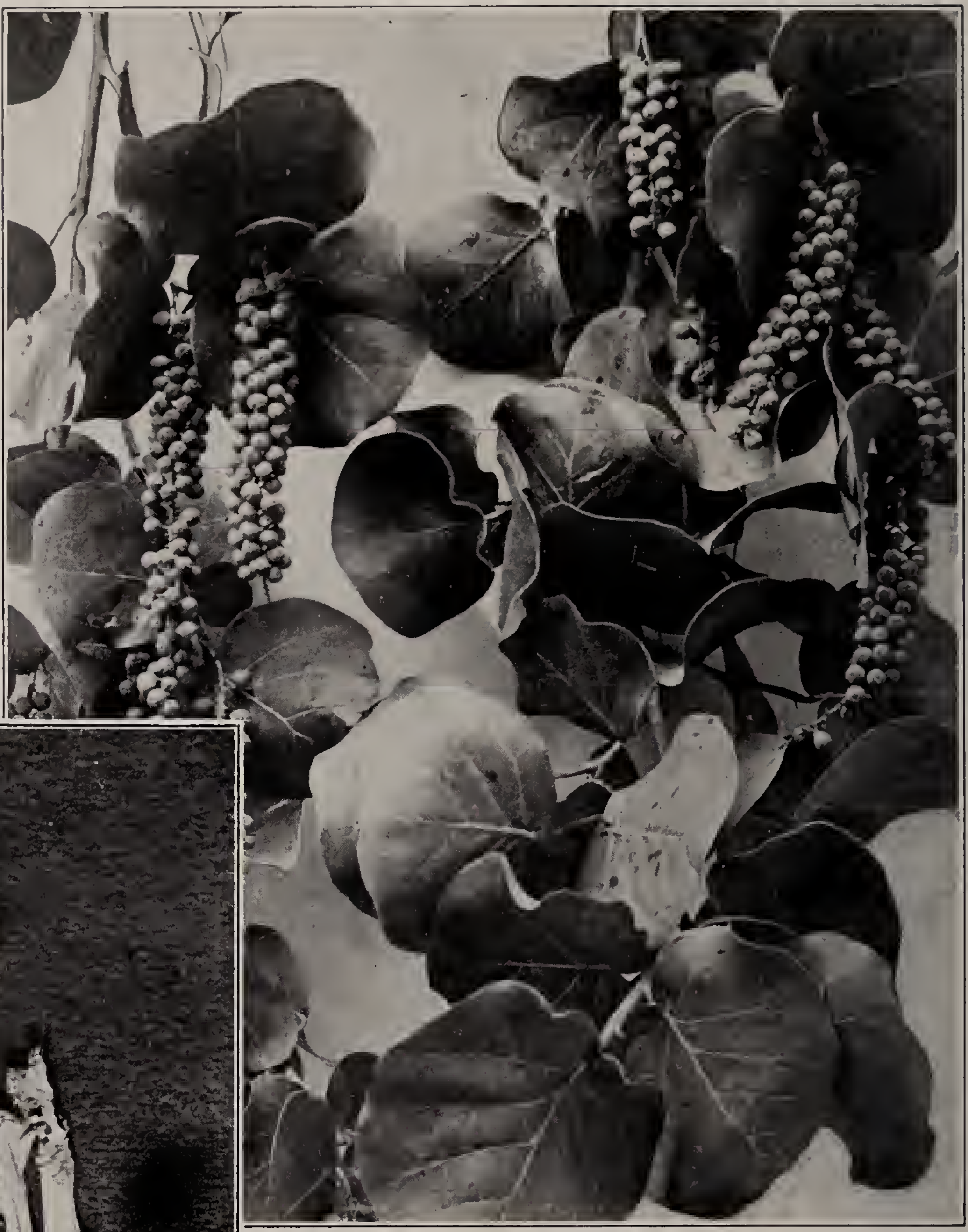
SCURVY-GRASS, a European perennial, cultivated and run wild here, allied to, and resembling, the watercress, but over-pungent in flavor. It is grown for its antiscorbutic properties, and is also credited with laxative and other medicinal principles.

SEA-COW. See Manatee.

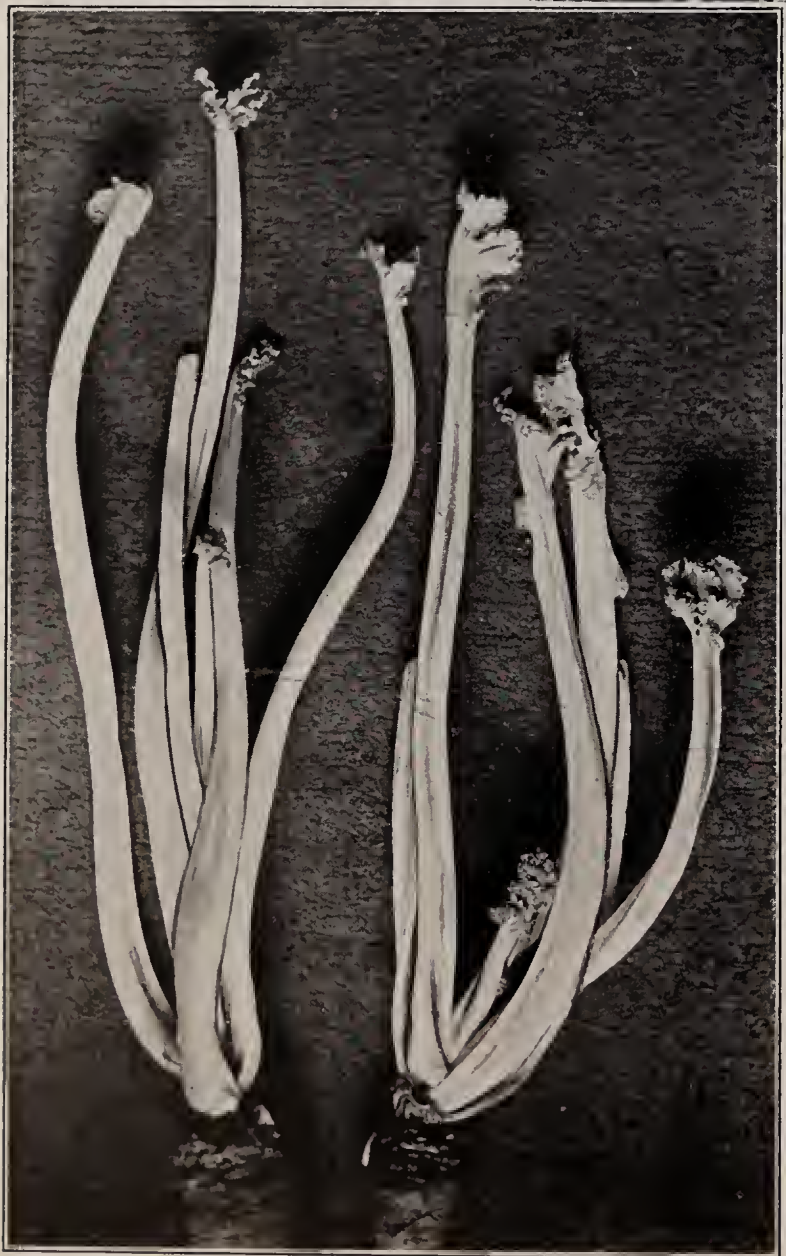
SEA-CUCUMBER. See under the head of Trepang.

SEA-GRAPE, or Shore-grape, the pleasing, sweetish, subacid fruit of a broad-leaved, bushy tree found in Florida, the West Indies, and elsewhere. It is purplish-red, pear-shaped, and three-quarters of an inch or so in length. It has no relation to the true grape, taking its title only from its clustered pendulous growth.

SEA-KALE, a vegetable found wild along the western coasts of Europe, and cultivated to an increasing extent in England and the United States. The young shoots, if properly blanched, are tender and of a delicate, nutty flavor. They are prepared for table in the same way as asparagus.



Sea-grapes



Sea-kale

SEA-MOSS. See Seaweed and Moss.

SEA-URCHIN, or "Sea-egg," a curious, shell-covered sea-creature of varying shape and size, plentiful along our coasts and valued in many countries—especially along the Mediterranean and in the Orient—for its content of minute orange-colored eggs, which are eaten raw or cooked. An "urchin" may be a small, flat "sand dollar" or a big creature five inches in width, and bears arms of various degrees of potential offense, from harmless excrescences to sharp spines several inches in length. It feeds on ocean vegetation and any animal life of suitable size, and is itself (despite its armor) sought as a delicacy by other sea creatures—particularly by the voracious starfish.

SEAWEED, one of the most abundant of nature's products, and frequently extolled as representing an almost untapped supply of human food. It offers, however, little in the way of nutrition as its main components are unassimilable or only very sparingly assimilable. Its food merits are chiefly confined to its gelatinous properties, which are useful for thickening soups, beverages, and jams, and for making desserts such as jellies; to service as a relish, or secondary "vegetable"; and to employment as a human-stomach "filler" in localities where food is scarce or lacking in variety, or both.

The most prominent of the products and varieties of those thus employed are Agar-agar, Carragheen, Dulse, and Laver, which are described elsewhere in their alphabetical positions.

Of much greater importance is the merit of seaweed as a fertilizer and for its yield of potash, iodine, etc.

SELF-RAISING FLOUR, Pancake Flour, flour of one or several grains (chiefly wheat, buckwheat, oats, and corn), ready prepared by the addition of substances (the same as those used in baking-powder manufacture) which, when moistened, have the raising effect of baking powder. For pancakes, biscuits, etc., it finds justification as a time-saver for the busy housewife or cook. Other ingredients may include dried eggs and milk to make it richer, corn or other sugar to sweeten it, and a little salt for seasoning.

SEMOLINA, or "Semola." See under the heading of Farina.

SERVICE-BERRY. See June-berry.

SESAME OIL, or Benne Oil, or Gingelly Oil, obtained from the small, flat seeds (of various colors, from white to brown or black) of the sesame, a small herb cultivated in tropical and semi-tropical countries, particularly in those of the Orient. It is a pale, sweet, straw-colored product, and is extensively used for blending with olive and other edible oils, and in perfumery manufacture. Its best qualities equal olive oil, and commercially it is even more important. In India it is everywhere employed for cooking, and it is grown for the same purpose in many parts of Mexico, and elsewhere to the South.

Sesame-seed is also used in the manufacture of biscuits and confectionery.

SHAD, the generic name of a group of fishes of the herring family, distinguished from the herring chiefly by having no teeth. The best is the big Common shad (see the color-page facing 470), native to our Atlantic Coast, and by introduction plentiful also along the Pacific. It attains a length of two feet or more and a weight of ten pounds. The average market weight is about four pounds. Its body is of compressed shape, the back rounded and bluish, with a reddish tinge, and its sides of silvery-white. It is in season from January to the beginning of June and is a very popular food, both fresh and salted. "Planked shad" has been a famous dish for more than a century.

The shad is taken when it enters fresh waters to spawn. The principal shad rivers of the East are the Delaware, Susquehanna, and Potomac; those of the Pacific Coast are the Sacramento and Columbia. The extinction which at one time threatened the fish has been averted by very successful artificial propagation by the federal and state governments.

Shad roe is in season from January to June, but is not in fine condition until about March, and sometimes a little later, according to the locality and other circumstances. A single roe may contain from 30,000 to 150,000 eggs.

SHADDOCK, an American title for fruits of the "pummelo" varieties of *Citrus grandis*—i.e., of all varieties except those we know as GRAPEFRUIT (which see). They are grown to a small extent in Florida and California. They are more inclined to pear-shape and are generally thicker-skinned and firmer-fleshed than grapefruits. Among the most famous are a red-fleshed, subglobose Indian variety (which frequently attains seven inches in diameter), and two seedless Siamese strains. Some of the special sour types of the Orient will yield a quart or more of juice to a fruit.

SHAG-BARKS. See HICKORY-NUT.

Shallots

SHALLOT, the bulb of a vegetable of the onion tribe, stronger but more mellow in flavor than the common onion, used for flavoring sauces and stews, and in pickles.

The true shallot ranges in size from that of a walnut to a small fig, is somewhat pear-shaped, and has a thick outer skin shading from reddish to grey, the bulb underneath being greenish at the base and violet on the upper portion. It grows in "clove" form, several cloves attached to a common disc.

The Jersey, or "false," shallot is of various shapes, frequently larger than the true shallot, with thin red skin, and bulb sometimes white but generally all violet.

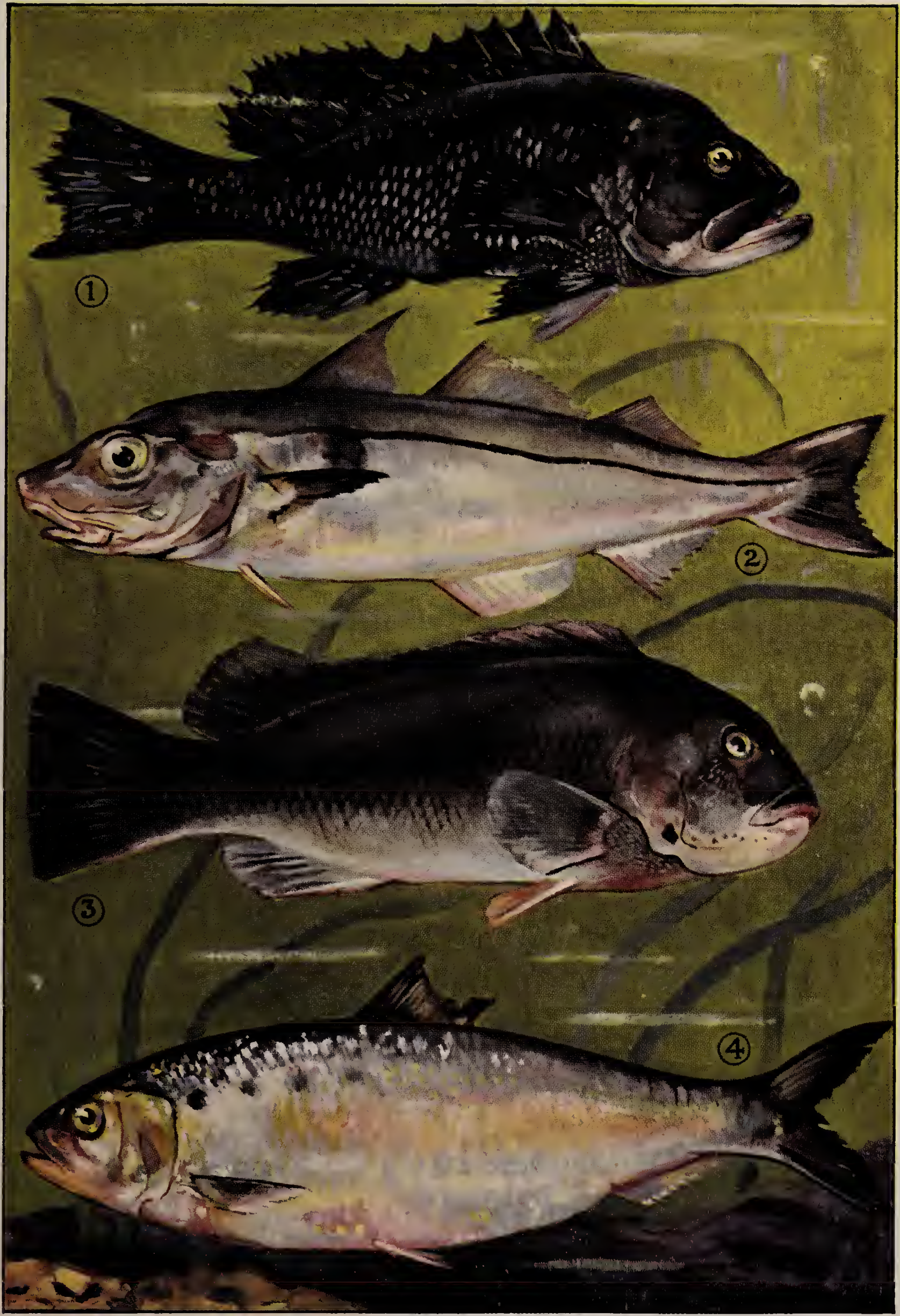
New shallots reach the northern markets about midsummer, but the chief sale is of the dried, which may be kept all the year.

A common practise is the sale of small red onions as shallots.

The shallot is also known as "scallion." That title is, however, better reserved for its other significance of a bulbless onion.

SHARK-FINS, a Chinese delicacy which consists of the dried cartilaginous part of the fins of various sharks—especially in California those of the "soup-fin" shark, the "grey tope" (*Galeorhinus zyopterus*), abundant along our Pacific coast and reaching a length of six feet. The "white", or back, fins are the choicest.

In its first preparation the fresh fin is parboiled, and then the skin, bone, and meat are removed, leaving only the soft, yellow cartilage. This in drying assumes a seaweed-like appearance, showing a hard, brownish base with a more or less pointed



SALT-WATER FISH

(1) Sea-bass; Black Sea-bass (*Centropristes striatus*)
(2) Haddock
(3) Tautog; Blackfish; Oyster-fish
(4) Common Shad; American Shad; White Shad

The illustrations are a little less than one-third the length of fair specimens.

fringe, several inches in length, of yellow, translucent, moderately flexible strands of varying thickness and lengths, and both straight and curled.

In cooking, the fin becomes tender and gelatinous, readily absorbing the flavors of the foods and spices—as chicken, ham, garlic, onions, and ginger—cooked with it.

Brown Bros.

Shark market, Fusan, Korea

SHARK - MEAT. The flesh of many of the smaller sharks, especially of those in temperate waters, is both palatable and wholesome. It is, generally speaking, somewhat like halibut, but softer and more gelatinous. It is particularly good if salted and lightly smoked. Dry salting is preferable to brining. The dried, salted flesh is sold in Folkestone, England, as "Folkestone beef."

One of the best of small sharks is the "smooth dogfish" (*Galeorhinus lævis*), a slender, graceful creature reaching three feet or so in length. Almost equally desirable is the "horny," or "spiny," dogfish (*Squalus acanthias*). Both range the Atlantic Coast from Halifax to the Carolinas, and the second, in a separate variety, is represented also along our Pacific Coast. The horny dogfish has in recent years come to be known as Grayfish (which see).

The meat of some of the larger fish may be tough—it is then best run through a meat chopper and used in fish balls. That of some species has a rather strong, peculiar odor, but this is readily removed by salting, and later freshening and parboiling prior to cooking.

SHEA-BUTTER, the fat extracted from the nut of the shea-tree of tropical West and West-Central Africa. The fresh nut, enclosed (singly, or two or three together) in a yellowish or greenish-black pulp of pleasing flavor, is about the shape and size of a walnut, but the skin is smooth and similar in character to that of a chestnut. It is used in food preparations—in artificial butter and chocolate manufacture—and in the manufacture of soap and candles.

SHEEP. See the article on Mutton.

SHEEPSHEAD (see the color-page facing 484), a valuable and abundant food and game fish, so named because its head and teeth resemble those of a sheep. It is caught all along the Atlantic and Gulf coasts and frequently far up fresh water, as (particularly) in St. John's River, Florida. Large specimens attain a weight of fifteen pounds.

SHELLBARKS. See the article on the HICKORY-NUT.

SHELLFISH, an especially interesting division of sea-food, may be grouped in two classes—*crustaceans,* those which have an articulate body, such as crabs, crayfish, lobsters, prawns, and shrimps; and *mollusks,* the invertebrates, as clams, mussels, oysters, and scallops.

The above examples of mollusks may be further styled "bivalves" to distinguish them from single-shelled mollusks such as abalones.

The edible flesh of several of the crustaceans ranks high in protein content, the most noteworthy in that respect being, in the order named, shrimps, lobsters, and crabs.

Of the mollusks, the richest is the abalone, which stands between the shrimp and the lobster in protein value — then, with much smaller percentages, come scallops, clams, and oysters.

With the exception of the abalone, the mollusks show a larger percentage of carbohydrates than the crustaceans, but the principal difference is that they contain a greater proportion of water.

See also the special articles on each shellfish.

SHERBET, a term which, in this country, is generally used to designate a flavored water-ice. Also, though not so frequently, a fruit beverage similar to lemonade, and an effervescent tartaric-acid drink. The name comes from the east and applies there to various fruit beverages, frequently scented with rose-water and flavored with spices. In other countries the name is loosely applied to many beverages, several of them containing rum, currant wine, etc.

SHRIMPS, a group of small, slender, long-tailed, salt-water crustaceans, of the same sub-order as the lobster and crayfish, and very closely allied to the prawns, abundantly found in numerous varieties in many parts of the world. Those most freely distributed here are the Common shrimp (*Crangon vulgaris*) of both the Atlantic and Pacific coasts (nearly related to the European Common shrimp), two to three inches in length, of greenish-grey with brown dots, and turning to reddish-brown on boiling; the larger California shrimp of the same genus (*C. franciscorum*); and the southern "shrimps" of the *Penæus* which turn pinkish-red in cooking. In addition to a heavy local consumption, the California shrimp is exported dried to China. The peeled tail-meat of the southern shrimps is canned in considerable quantities. Technically, it would be better to class the southern shrimps as "PRAWNS" (which see), but the use of the former title is now firmly established.

SHRUB, a West-Indian drink, made of lime or lemon juice, the rinds of the fruits, sugar, water, and (generally) spirits of some kind. Other fruit juices or extracts are sometimes substituted for the lime or lemon juice.

SILLIBUB, a variously flavored mixture of wine or cider and milk or cream, whipped to a froth. The wine or cider turns the milk or cream into a soft curd.

SIMNEL CAKE, a sweet cake formerly made in many communities for Simnel Sunday (also known as "Mothering" and Refreshment Sunday), the fourth Sunday in Lent—and, by extension, for Easter and Christmas. It resembles an English meat-pie in appearance but its composition is very closely akin to that of a rich plum pudding.

"Mothering Sunday"—i.e., mother-visiting Sunday—was so entitled from an old English custom of making Mid-Lent a holiday for girls in service so that they might spend it with their parents.

SIRUP, a title for any thick, sweet liquid. This article refers particularly to those which are consumed for their own flavors, as *maple-sirup,* not to those of added flavors, as "lemon sirup."

The most famous are Maple-sirup (which see) and *Cane-sirup,* the latter obtained by the refining and concentration of sugar-cane juice, without the extraction of any of the sugar content. Next come those obtained as the residue (1) of the manufacture of raw sugar, (2) of sugar refining. The former is treated under the heading of Molasses: the latter is variously known as "treacle," "refiner's sirup," and "drip sirup." Plain treacle is seldom marketed nowadays, as modern methods remove so much of its sucrose that it would not be sweet enough. The cane flavor remains though and this is blended with invert-sugar or corn-sirup to produce "golden sirup," a product both dietetically valuable and pleasing in flavor.

Sugar-sirup is made by dissolving and diluting sugar to the consistence of sirup.

Other natural sirups include those of the Carob-bean, Mesquit, and Sorghum, referred to in their alphabetical positions.

The overwhelming trend of the trade in recent years has been to the canning of the sirup to be retailed. Canning offers the great advantage that it does away with the necessity for any preservatives to prevent fermentation. Sirup hot from the kettle or pan, filled into thoroughly sterilized cans or other packages, and then hermetically sealed, will keep almost indefinitely without deterioration.

See also Corn-sirup, Fruit Sirup, and Malt-sirup.

SKATES and RAYS, a group of long-tailed, ugly flatfish of the genus *Raia,* found in many sizes—from the briar-ray, or "little skate," up to the devilfish, which may attain a width of twenty feet or more. It includes also the sting-ray, or stingaree, with a tail spine capable of inflicting a serious wound, and the "torpedo," or "cramp," or "electric," fish which generates enough electricity to knock a man down. The body of the average specimen is so full of bones that (as a rule) only the "wings" are sold. The wing meat is fairly good and is consumed both fresh and salted—the latter method being preferable for large specimens.

The titles "skate" and "ray" are variously and contradictorily applied. Specifically, skates are those with the more pointed snouts.

SKIRRET, a plant formerly of popular cultivation in Europe for its greyish-white roots, which resemble those of the oyster-plant in general character but grow in clusters and are less regular in shape. They are usually boiled and served with butter. Their flesh is very white and (if well grown) they are tender and sweet. Their defect is a woody core which must be removed before cooking.

SLAW, or Cole Slaw, the raw heart of the cabbage head, chopped or cut into long shreds, and eaten either cooked or (much more frequently) raw, with vinegar, or other seasoning or dressing, as French dressing, cream, etc. ''Cole-slaw'' is often written and pronounced ''cold-slaw'' from a mistaken conception of the significance and intent of the first word. ''Cole'' has nothing to do with the temperature. It is, instead, a general type-title for any plant of the *Brassica* genus—which includes the cabbage. ''Slaw'' has developed from the Danish word for salad.

SLOE, or Blackthorn, a thorny shrub of the plum group, common in many parts of Europe and in some parts of America, which by some botanists is credited with being the parent of the cultivated plum. The fruit is nearly round, about the size of a very large pea, and deep blue with blackish bloom. When raw, it is (in typical varieties) sour and astringent, but large quantities are utilized in Europe in preserved form and as flavoring for various liquors and liqueurs. The dried leaves have frequently served as an adulterant of tea. The ''suckers'' of the bush are the well-known blackthorn walking-canes.

The ''black sloe'' of the southern states is a tree of a different species, cultivated for its profusion of white blossoms. Its fruit is small and bitter, and generally yellow or reddish yellow. It is occasionally used in preserves.

SMELT (see the color-page opposite 294), a little fish (*Osmerus mordax*) of the Atlantic Coast and many northern lakes, light greenish above and silvery on the sides, with dark markings on both body and fins. Its weight averages from two to fifteen to a pound—one weighing over a pound is a very big specimen. Large quantities are shipped frozen, but the unfrozen fish—known as ''green smelt''—is much superior if quickly utilized—it then carries a refreshing cucumber-like odor and exceptional delicacy of flesh.

The Pacific smelt is of a different species—a feeble little fish and of poor keeping quality, but of excellent flavor if speedily transported to the kitchen.

SMOKED MEATS, those preserved by wood-smoke (the creosote and formaldehyde of the smoke being the actual preservative agents), following their curing in a mixture of salt, saltpeter, and sugar (or any one of many other formulas). They need especially careful attention during the summer months. The most important are ham and bacon.

''Canvassed'' are preferable to ''naked'' hams and bacon. Under present methods of government and state inspection, the consumer is reasonably sure that his purchase came from an animal in sound health, and that it was cured under cleanly surroundings, but unless it is wrapped, or canvassed, much of this precaution may be offset by carelessness and uncleanliness in the handling of it afterwards. The canvas serves as a protection both during the delivery of the meat to the retailer and while it remains in his possession—right up to the moment of delivery to the consumer.

Mold on hams and bacons is not a sign of poor quality or deterioration. If it appears on ''naked,'' or unwrapped, hams, it may be easily removed by rubbing with a cloth slightly moistened with sweet oil or lard. This application is sometimes desirable even when no mold appears, as it tends to prevent its formation and gives a bright, fresh appearance.

A simple and inexpensive method of keeping "naked" smoked meats in hot weather, is to put them into paper flour-sacks, tying the tops with strong twine and then hanging them from the ceiling where the air can pass between them.

With the exception of a few special varieties, such as Virginia, Westphalia, etc., which are improved by one or two years' keeping, the best ham and bacon, other things being equal, is that which is the freshest cured. Formerly, smoking was practically suspended during hot weather, but modern mechanical refrigeration makes it possible to cure hams and bacon of the finest quality every day of the year.

See also the articles on BACON, HAM, and SAUSAGES.

SNAILS. The edible land-snails consumed in large quantities in France and several other European countries present a considerable diversity of size and appearance. The most highly esteemed are those of the species *Helix pomatia,* locally known as the Burgundy, "large white," Roman, and "vineyard," with shells varying from greyish-yellow to greyish-red and with irregular black markings, the latter in some cases completely covering the shell. They are gathered in vineyards and also raised in snaileries, or snail farms,—patches of moist, clayey ground, suitably fenced or separated by little water-canals, and provided with bushes or high plants for protection against the sun, shaded pools of water, and (frequently) low, sloping, wooden "shelters." They are fed principally on lettuce and other green stuff. Fruits and aromatic herbs, such as thyme, may be included in the diet to give a special savor to their flesh. The creatures are prolific, each giving in the spring from fifty to sixty eggs.

Next in importance to the "large white," is the "black mouth," much smaller but also of good flavor.

The common snail of the garden, woods, etc., consumed chiefly by the poorer classes, is commercially classed as the "small grey." It is generally grey, with faint markings, but is also sometimes a full yellow.

Paris is the best customer of the collector and the breeder—an average of eighty millions a year being sold in its principal markets, the Halles Centrales. The Paris demand is, however, slowing up—the snail does not occupy as high a pedestal in either popular or epicurean favor as it did a generation or two ago. The snail market also plays an important part in the food supply of Vienna during the Lenten season, large quantities of "Swabian snails" being imported from Wurtemberg and other parts of southwestern Germany.

Snails are for market purposes graded according to variety and size, and packed in baskets, bags, and casks. The two principal seasons are the spring and winter. The former is supplied largely by itinerant gatherers of the wild snails which show themselves freely after spring showers. The fall and winter supplies, the last-named generally bringing the highest prices in Paris, are of both farm-raised and wild snails. They are then sealed up for the winter—which explains the apparently "dried" condition of the fresh imported snails received here.

Snails are, in Europe, retailed both raw and cooked. The methods of preparation are numerous—some cooks utterly overwhelming them with sweet herbs, spices, and wine. That most popular in France is to boil them in salt water for twenty minutes —or until they may be easily taken out of their shells—then remove the meats, wash in several waters, pound to a paste, season with parsley, shallots, etc., and stuff back into the cleaned, dried shells. Another receipt is to stew the meats (after boiling, removal, and repeated cleansing) in any light stock for half an hour, then return them to their (cleaned) shells, fill with a paste of butter, parsley, and condiments—or any similar mixture — and bake in the oven until piping hot. They should be served promptly. The meats are picked out with a fork. They go well with Graham bread and butter, and watercress.

Whatever the form of preparation, snails are consumed generally as a light "snack" or as an entrée, not as the central dish of a full meal. Plainly cooked—stewed in milk, etc.,—they were formerly considered particularly desirable in the diet of delicate people, especially of those of tubercular tendencies.

The American prejudice against snail eating is unjustified, for the snail is a cleanly little animal which subsists on the most wholesome vegetable foods. Its flavor, when plump and fresh, is somewhat like that of the oyster and its food value is high.

The present small consumption here (chiefly by foreign-born residents) is mainly of the European product—imported, both fresh and canned, to a yearly total of a

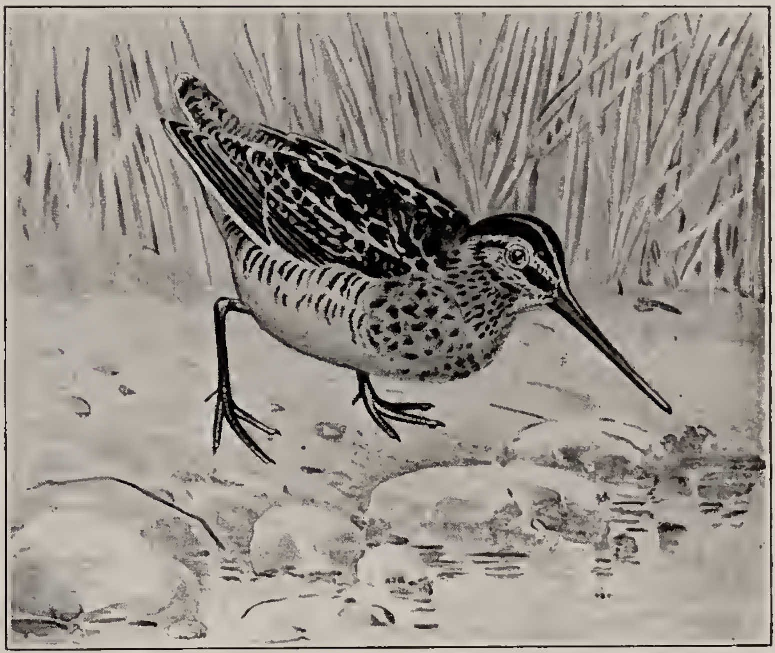
A snail-farm in the environs of Paris

few thousand dollars, but the growing of native snails of the *Helix pomatia* and other species would be an easy matter in many parts.

The initiative in snail rearing is credited to a Fulvius Hirpinus of Tarquinium about 50 B.C., who fattened the creatures on meal and boiled wine.

SNAKE-MELON, or Snake-cucumber, a variety of melon, greenish, narraw, but is popular in France for prevated chiefly as an oddity. It is inedible raw, but is popular in France for preserving. Some French forms reach three feet in length.

SNIPE, the generic name of a number of small game-birds somewhat resembling the woodcock. Their plumage is variegated, and most elaborate in the female. The best known are the jack-snipe, or "half snipe," or Wilson snipe, or "English snipe," the smallest and prettiest, which does not average much over two ounces in weight; the Common, or "full"; and the Great snipe, or "double snipe," or "solitary snipe," the largest, which may weigh ten ounces.



Jack-snipe

SODA, in the form in which it is chiefly used for food purposes, is variously known as *bicarbonate of soda* (or *sodium*), *supercarbonate of soda,* (*soda*) *saleratus,* and *baking-soda.* It is one of the chief ingredients of all BAKING POWDER (which see). It is generally obtained as a side product in the manufacture of soda proper, or sal soda, known in the average household as "washing-soda."

When employed in baking biscuits, etc., baking-soda produces carbon dioxide (which is the active "raising" principle) by reaction in contact with the acid contained in the sour milk or buttermilk which accompanies its use. Its performance as an ingredient of baking powder is identical, for it then reacts under similar conditions with similar result in contact with the acid added as a complementary component.

Soda should never be used with fresh milk or green vegetables as it quickly nullifies their vitamin-C content (see also the more extended reference in the general article on VEGETABLES).

SODA-CRACKER, a "cracker," or light thin biscuit, made from a plain dough of flour and slightly salted water, leavened with bicarbonate of sodium and cream of tartar. See also the article on BISCUITS AND CRACKERS.

SODA-WATER. See CARBONATED WATERS.

SOLE, a European flatfish, highly prized for the delicacy of its flesh, which obtains its name from its resemblance in shape to the sole of a human foot. The most important species is *Solea vulgaris,* the true Common sole—often specifically entitled

"English sole," though frequenting also the southern Baltic and other waters—which grows to a considerable size. It achieves maturity at about ten inches in length, but specimens exceeding two feet are not uncommon. It must not be confused with the inferior English "lemon sole" and similar substitutes.

The only genuine sole is the imported, but various domestic flatfishes are retailed and eaten in its name. The skin of the true sole can easily be torn from the flesh—a test that substitutes cannot pass.

The titular "American sole" is *Achirus fasciatus,* a smaller fish of our Atlantic coast. Two other well-known "soles," both of Pacific waters, are *Eopsetta jordani* and

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Grain-sorghum

Psettichthys melanostictus. E. jordani is a particularly good food-fish with an average market weight of three pounds and a maximum of about eight.

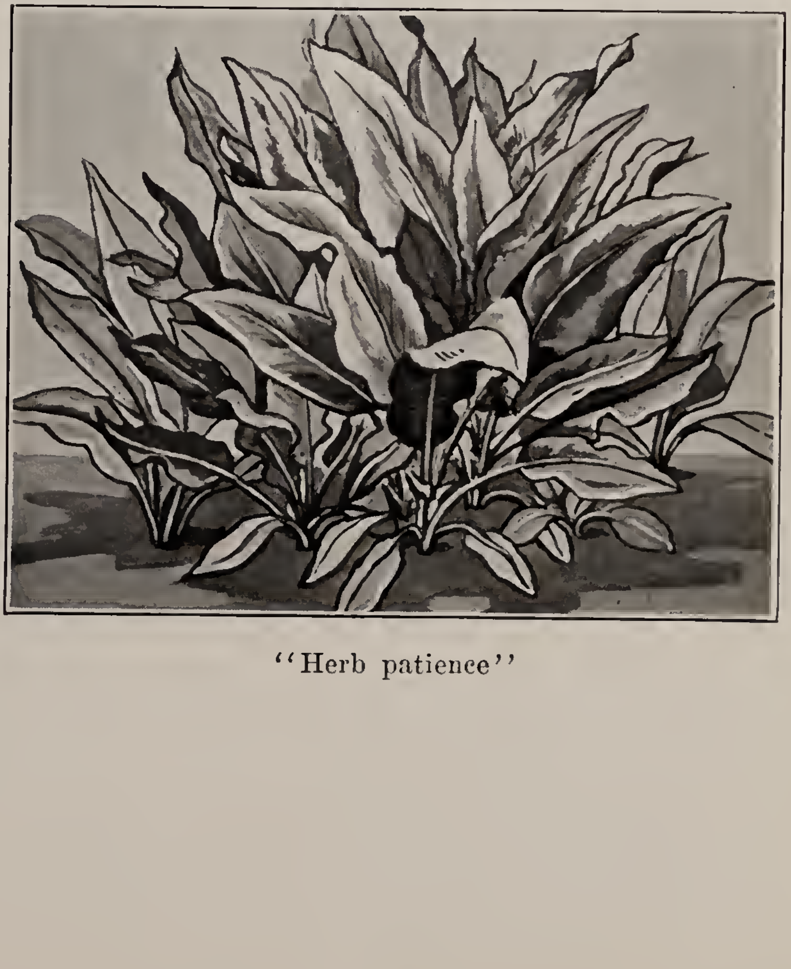
SORGHUM, a general title for a group of grains native to tropical Africa and Asia, and largely grown on both those continents, which resemble maize in general growth except that they bear heads of small seeds instead of side corn-ears. They include two classes noteworthy for their food value—the sugar-sorghums (also known as "sorgo," "guinea-corn," and "Chinese sugar-cane") and the grain-sorghums—kafir (or kafir corn), milo, durra (which includes feterita), kaoliang, and others. They are all similar in appearance, but the grain-sorghums are usually stockier, less juicy in stalk, and with more compact seedheads. The illustration opposite is of a field of grain-sorghum. A third division is of the broom-corns, whose long, loose, more open seedheads are utilized in the manufacture of brushes and brooms.

To the American farmer the chief value of both of the food classes is for stock-food, particularly in parts too dry for the profitable cultivation of maize, but the stalks of the sugar varieties also yield an excellent sirup (often called "molasses" because the common unclarified home or farm product is of molasses-like thickness), and the ground seeds of the grain varieties can be, and are to an increasing extent, used in households within and near the growing area in the same ways that cornmeal and buckwheat-flour are—in pancakes, mush, and puddings, and mixed with wheat-flour in bread. The meal requires longer cooking than cornmeal and its percentage of assimilation is lower but it is nevertheless a thoroughly desirable addition to our cereal foods. The flavor is suggestive of buckwheat. Of the sirup, our annual production, chiefly in the South, is now considerably in excess of twenty million gallons.

The juice of the sugar-sorghum contains so high a percentage of sucrose that a few years ago it was hoped that it would prove an important commercial source of sugar. It was found however that special difficulties of crystallization and refining rendered competition with cane and beet sugar unprofitable. In China, under different commercial and economic conditions, large quantities of sugar of agreeable flavor are obtained from it for local use, generally by evaporation into thin, yellow-brown sheets (three-eighths to one-half inch thick) which are then cut into strips.

The seeds of the sugar-sorghums are seldom used as human food because of their tight-clinging hulls and astringent coats.

SORRELS AND DOCKS, perennial vegetables, in various slightly modified forms of the wild plants, whose large, fleshy, tender root-leaves, cut when young, are used in salads and as early greens. They are especially good mixed with spinach, giving it a pleasing acid taste. The best known types are the mild, very productive, Spinage-dock (or "herb patience") and the more acid Broad-leaved French, or Belleville, sorrel.


"Herb patience"

SOUARI-NUT, the tropical "butternut," a large, flat, kidney-shaped nut, with warty, reddish-brown shell, contained (with one to three companions) in the big, roundish fruit of *Caryocar nuciferum,* a tall tree of the American tropics. The kernel is white, rich in oil, and of delicate almond flavor. The caryocar genus includes several other species bearing nuts of excellent eating quality.

SOUND, the air, or swim, bladder of a fish. Those of the cods and various other fishes are enjoyed as a food delicacy (see subhead in Cod) because of their gelatinous consistence but the chief commercial interest is in the Isinglass (which see) prepared from them.

SOUPS. The very great number of soups may generally be classified under the headings of *Clear*—bouillons and consommés, and *Thick*—creams (or purées), bisques, and unstrained.

Bouillon is an ordinary clear broth. The title is generally reserved for beef broth, unless otherwise stated, as clam bouillon or tomato bouillon.

Consommé signifies specifically a clear soup made by boiling together a knuckle of veal, a shin of beef, and a fowl. It is now generally applied to the entire class of finer clear soups or very strong clarified broths of various kinds of meats and vegetables—specialized according to the chief meat flavor, as beef consommé and chicken consommé, or by special character additions, as consommé vermicelli.

Cream, or Crème, soup is thick strained soup. *Purée* is a French culinary term with the same significance. Cream soups are made in great variety—as cream, or purée, of celery—of carrots—of tomatoes. Almost any canned meat or vegetable, as asparagus and green peas, can be used for the purpose by the addition of cream.

Bisque, or Bisk, is a Cream soup conventionally made or finished with fish or shellfish, chiefly the latter—as bisque of crayfish and bisque of crab. The word was originally applied only to a form of pigeon soup of which crayfish was one of the characteristic ingredients or additions. In course of time, pigeon soup was relegated to the list of old-fashioned dishes but the word "bisque" survived and was continued in use, associated with crayfish cream soup as "bisque of crayfish." Later it was applied to other shellfish cream soups and the tendency is to still further enlarge its scope, not only to include fish but also other cream soups for which it would seem to have no particular affinity.

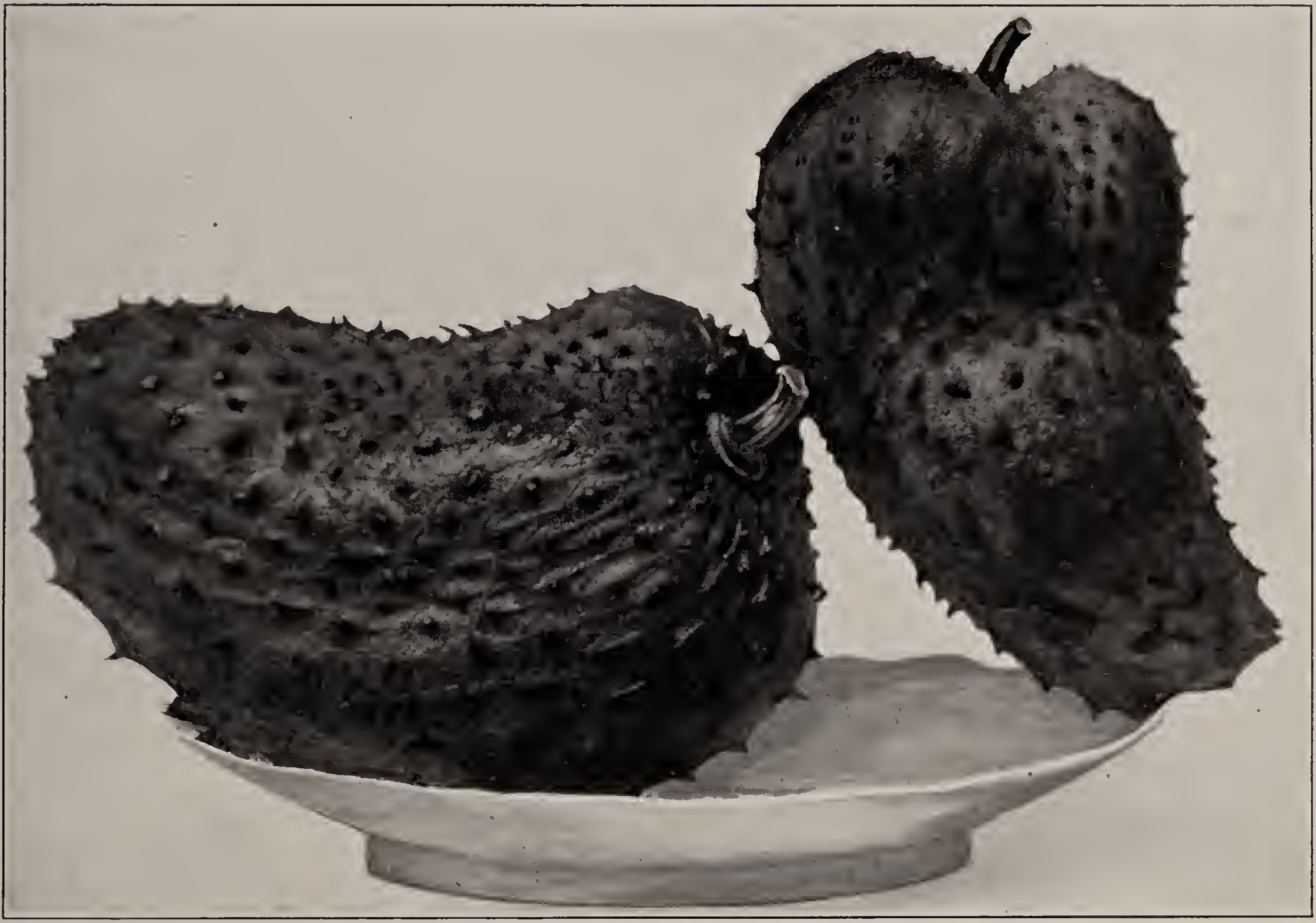
Unstrained soups are thick soups such as mutton broth, oxtail soup, and vegetable soup.

Soups of many kinds are now canned and they have proved a great convenience to both the housewife and the cook, offering an agreeable diversity with no trouble of preparation and capable of being served at a few minutes' notice. There are also many extracts which require only the addition of water to serve as a good basis for soup. Serviceable, too, but in small demand, are the "dry" soups—packages of desiccated ingredients.

Among the most popular examples of canned soups are: asparagus, beef, bouillon, celery, chicken, chicken gumbo (okra), clam broth (or bouillon), clam chowder, consommés (chicken, vegetable, etc.), julienne, mock-turtle, mulligatawny, mutton broth, oxtail, pea, petite marmite, pepper-pot, printanier, tomato, green turtle, and vegetable. The titles of the majority of these are self-explanatory. Of the others, *Bouillon* and *Consommé* are described in the preceding paragraphs of this article, and Chowder, Gumbo, Julienne, Mock-turtle, Mulligatawny, Pepper-pot, Petite Marmite, and Printanier in their alphabetical positions.

See also remarks in the article on Vegetables.

SOUR-SOP, or Guanabana, a tropical fruit akin to the sweet-sop, but larger—those of good size weighing four or five pounds—and with a thick, greenish skin marked at regular intervals with blunt, fleshy spines. The soft, rather cottony, white flesh is aromatic in flavor but generally rather tart. The skin should be removed before attempting to eat the fruit. The most pleasing way of service is as a frozen dessert resembling ice cream—the flesh is passed through a colander, beaten well, strained, sweetened to taste, and frozen. It is also variously preserved, one of its commercial forms of West-Indian preparation consisting of the flesh canned in a thin sirup—being thus pleasing to the taste, but still retaining the objectionable cottony texture.



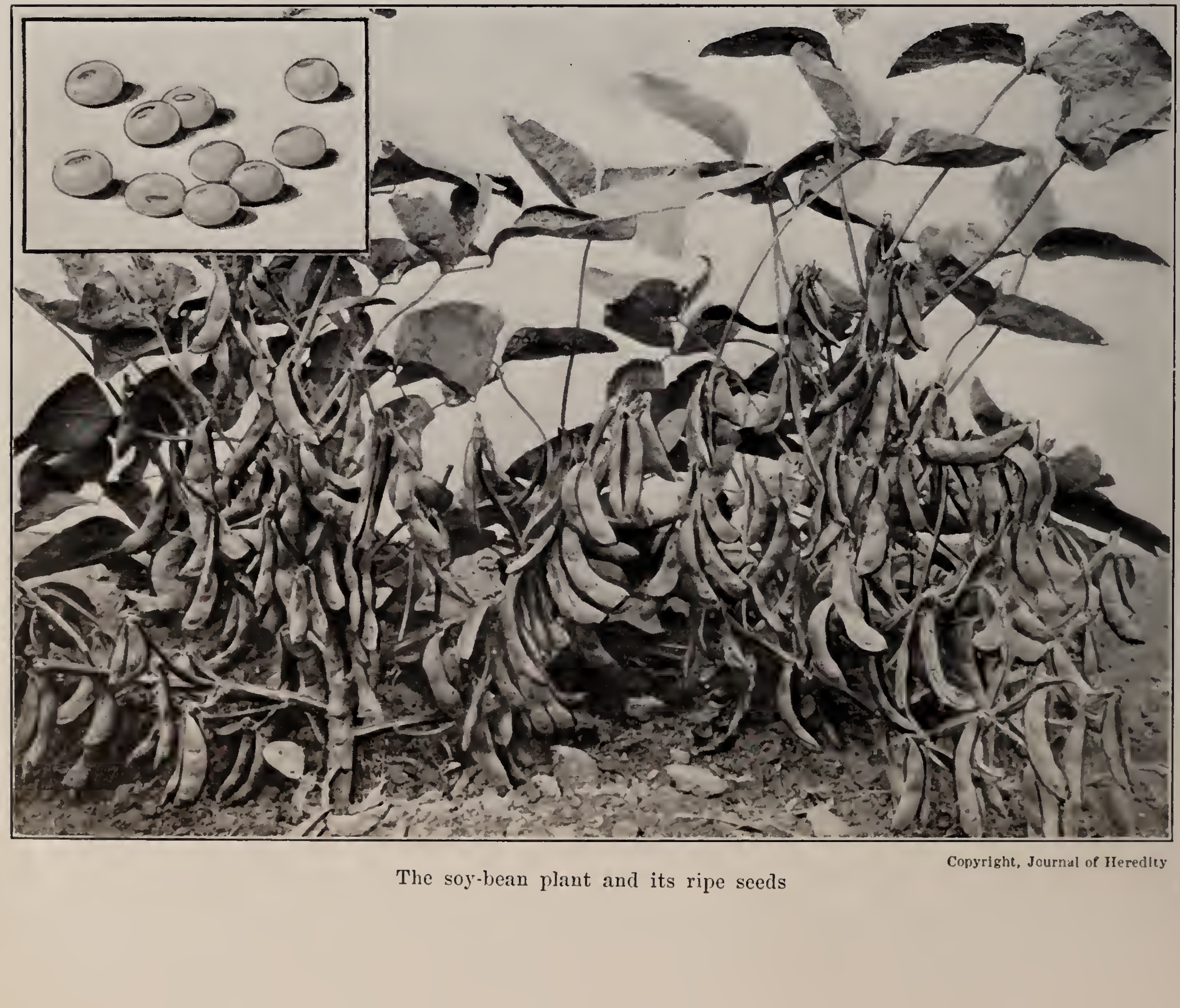
Sour-sops

SOY, or Soya, a brown sauce, valuable to the commercial sauce manufacturer, obtained by a long double fermentation of mashed, steamed soy-beans and pulverized, roasted wheat, together with water, salt, etc. In appearance it resembles Worcestershire sauce, of which it is an important ingredient. It should be clear, thick, and sirupy. When shaken in a bottle or glass it should leave a bright yellow film. It should not be too salt or too sweet.

SOY-BEAN. Commercial and government circles both in Europe and this country are devoting increasing attention to the cultivation of the soy-bean as a human food product, on account of its large percentage of assimilable protein and its considerable fat content. It has for hundreds of years largely taken the place of meat in the diet of millions of people in Japan, China, and other parts of Asia. It contains no starch, its carbohydrates consisting chiefly of galactans (of doubtful assimilation) and a small percentage of sugar.

It may be prepared as a vegetable—first soaked to aid the removal of the skins, then boiled until soft, and seasoned—but it is too high in nutrition to be generally suitable or desirable for eating as an ordinary vegetable, i.e., with meat or other protein food. It is much better from both dietetic and gastronomic standpoints to regard it and employ it as a meat substitute—to be eaten as one eats cheese. It is, indeed, in ''cheese'' forms—commercially prepared—that its food use in this country will probably develop, for it thus yields a variety and richness of flavor unobtainable by simple cooking.

The most popular preparations in China and Japan are *tofu,* a curd cheese, which resembles our ''cottage cheese''; *shoyu,* or soya, or Soy (see preceding); *miso,* soy-bean milk—a strained water-solution of the pulverized beans which looks a good deal like cow's milk; and *natto,* obtained by simple fermentation of the boiled beans. Tofu is made by coagulating miso (by means of vinegar, or some of the ''whey'' from



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The soy-bean plant and its ripe seeds

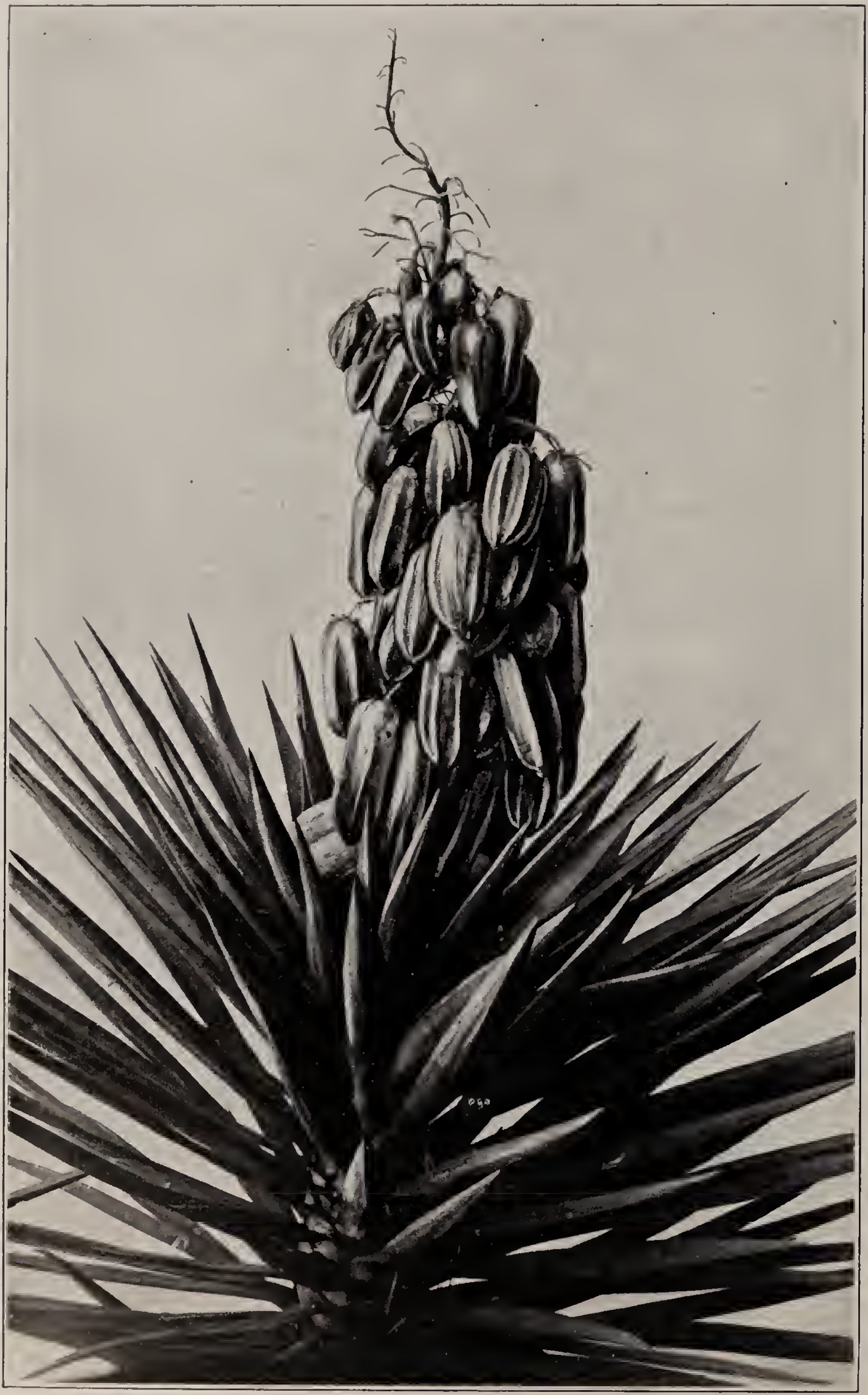
Soy-beans and soy-bean cake awaiting shipment, Dairen, Manchuria

a previous making, or by various other additions), then pressing between cloths and cutting into squares or molding into round cakes. In this form, it should be eaten fresh, either raw or cooked—particularly the latter—being then, if well prepared, a real delicacy. The solid residue strained off in the making of miso is used both as human and hog food. The various degrees and styles of fermenting and cooking the beans serve the double purpose of rendering them more easily digestible and producing new flavors, just as by the various fermentations and ripening of milk and cream we produce the different flavors of cheese. The many other products include "soup noodles," made of the curd, sweet "jellies" (particularly of paste or "fruit-cheese" type) and other sweetmeats. Any and all of these are eaten with rice or potatoes or yams, and in many other ways. A favorite combination—and one that is excellent in food value—is a dish of Bean Sprouts (which see) and tofu.

The plant is an annual, growing chiefly in bush form to varying heights of from two to six feet, with branching, hairy stems, slightly hairy leaves, white or pale lilac or violet flowers, and hairy pods containing from two to five beans, from round to oval, and more or less flattened. There are a number of different varieties under the principal classifications of yellow, black, white, and brown, according to the color of the beans. Under favorable conditions a single plant may bear a hundred or more pods. Some varieties will in good seasons ripen their seeds as far north as Massachusetts but the southern states are more suitable for commercial cultivation.

Because of their lack of starch, the beans have been recommended as a desirable food for diabetics, and soy-bean bread and soy-bean meal are prepared for that purpose in Paris. The dried beans are also used in Switzerland and elsewhere as a coffee substitute.

Soy-bean oil is commercially important, and is used for all the purposes for which other high-class vegetable oils are employed.



Spanish bayonet

SPADE-FISH, or Angel-fish, or Porgy (*Chætodipterus faber*), a dark-grey, or bluish, southern fish, resembling a butter-fish but with long side-fins. It weighs usually from three to ten pounds, though sometimes caught very much larger. In eastern markets, it is most abundant during July and August. The flesh resembles in flavor that of the sheepshead.

SPAGHETTI. See the article on Macaroni.

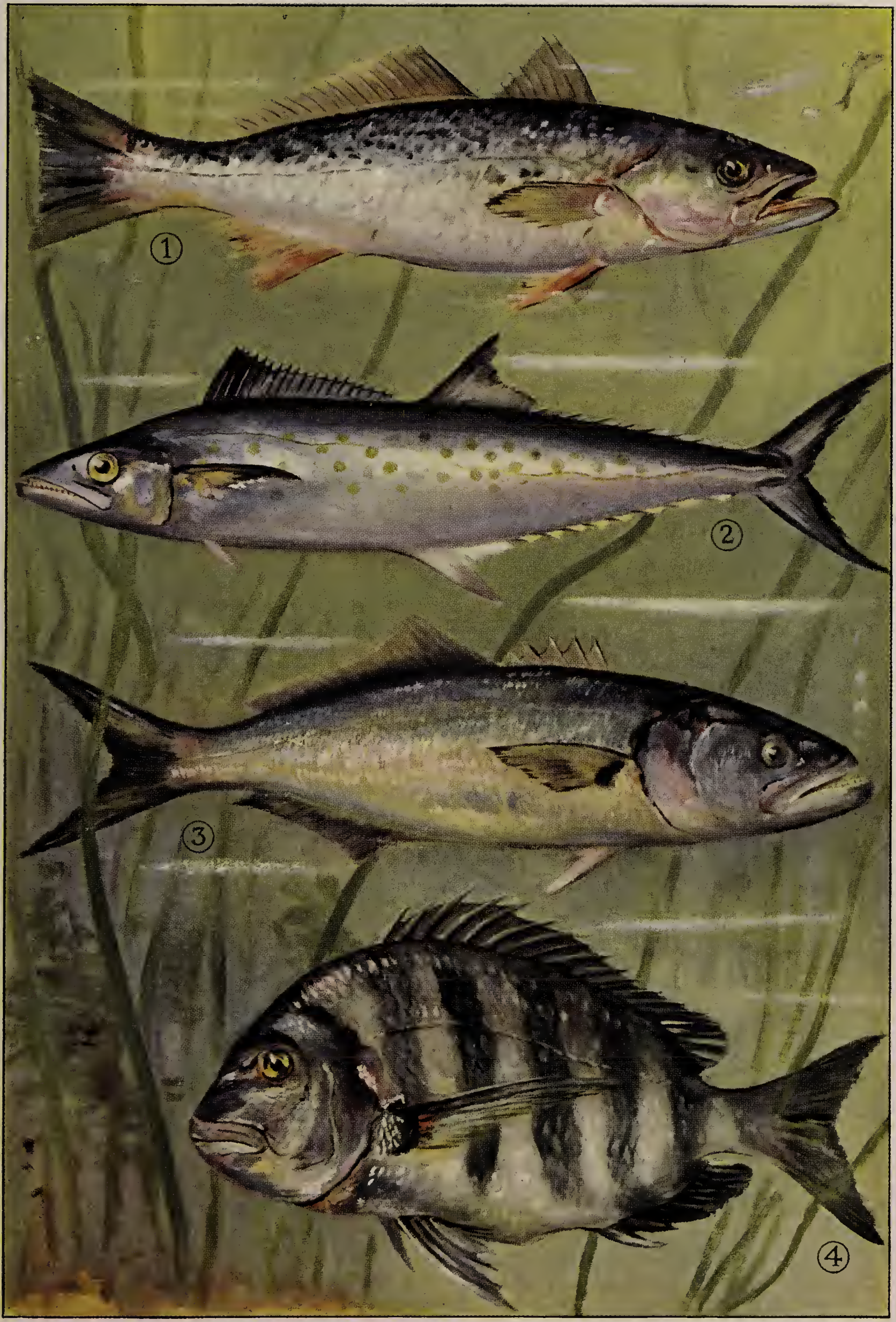
SPANISH BAYONET, a southern plant belonging to the yucca group. The fruit ripens in a cluster, following a beautiful flower-stalk rising from the center of the plant. It has a thick, tender rind and a seedy, dark purplish pulp. It may be cooked in almost any way suitable for apples.

SPANISH LIME. See Ginep.

SPANISH MACKEREL (see the color-page opposite), a warm-water or warm-weather fish widely distributed along the Atlantic and Gulf coasts, handsome in appearance and excellent in flesh. Its general market weight is from one to three, up to a maximum of nine pounds. Specimens of much greater size are occasionally caught.

Of the same genus are the similar Sierra of the Mexican Pacific and two "Kingfishes" (which see).

California fishermen frequently apply the title of "Spanish mackerel" to the Pacific Bonito.



SALT-WATER FISH

(1) Common Weakfish; Squeteague; Sea-trout
(2) Spanish Mackerel
(3) Common Bluefish
(4) Common Sheepshead

Large fish. Illustrations greatly reduced. See descriptions.

SPANISH OYSTER-PLANT. See Oyster-plant.

SPEARMINT. See the general article on Mint.

SPECK, the German word for bacon, widely used among German and Dutch descendants in Pennsylvania and elsewhere for salt pork or unsmoked bacon—or other fat meat as, in Africa, that of the hippopotamus. It lives particularly in the titles of dishes such as "cabbage with speck" and "speck and apples."

SPELT, a species of wheat, poorer in the number of grains to the head but otherwise to the casual observer resembling the wheat of general modern cultivation. It is grown in southern Germany, Switzerland, and northern Spain.

SPICE, an aromatic, often pungent, vegetable substance used chiefly for the seasoning of food. The many kinds represent various portions of their respective plants—ginger is the rootstock; cinnamon is the inner bark; cloves are the flower-buds; nutmegs are the seeds; black peppercorns are the whole fruits; and sage, thyme, and other herbs comprise the entire upper parts of the plants. Their aroma and characteristic qualities are contained chiefly in their essential oils.

In olden times, the tropical spices—cinnamon (including cassia), cloves, pepper, and others—were, because of their great scarcity, held in extremely high esteem. They were included in the tribute which other monarchs paid to Solomon, and were indispensable ingredients in the sacred oil of the Tabernacle. Later, the patricians of Ancient Rome were especially lavish in their use, both in the preparation of food and burning them with incense at altars and in funeral rites. Their sale and use in Norman England is told in the article on the Grocer.

In those earlier days Arabia was popularly credited with being the home of all spice luxuries because, prior to the rounding of the Cape of Good Hope, it served as the chief trade route and market for the products of the East Indies—of Ceylon in particular.

Unspeakably vile is the later history of Ceylon cinnamon, the nutmeg, and the clove, vivid with many deeds of blood-stained atrocity. The Portuguese and the Dutch maintained their control of the supply by executing any but government employes attempting to engage in its export, and by destroying plantations and accumulated stores. On more than one occasion, entire native populations were massacred to prevent them selling to other countries.

The dawn of modern enlightenment, the destruction of monopolistic control, and scientific cultivation of the various spice-plants, have brought about an abundance of all varieties at prices which make what was formerly a luxury for only kings and nobles an every-day possibility for even the poorest living in the twentieth century.

Commercialism for many years substituted extensive adulteration for the old-time barbarism. Until recently a very large proportion of the "spices" marketed were mixed with a considerable bulk of other materials which robbed them of much of their strength and greatly impaired their flavors—but conditions in that respect have been revolutionized, and strictly enforced government standards ensure the essential purity of all spices marketed in the United States—though there remain, of course, differences of quality and grade. This improvement has tended to restore public confidence and to stimulate a more general demand—an excellent result, as their proper use relieves the cookery of the average American home of the criticism of "sameness" and monotony of flavor. There is a wide field for their employment—in every-day preparation of foods as well as for preserving and pickling.

The principal spices of general modern consumption are allspice, anise, bay-leaves, capers, caraway, cardamom, cassia (see CINNAMON), cayenne pepper (see PEPPER), celery-seed, cinnamon, cloves, coriander, cumin, curcuma (see TURMERIC), dill, fennel, ginger, horseradish, mace, marjoram, mint, mustard, nutmeg, paprika, parsley, pepper, saffron, sage, savory, tarragon, thyme, and turmeric (see descriptive matter in their alphabetical positions). Several of these are more generally classified as "sweet herbs" (see HERBS), but they are all "spices" within the full meaning of the word and are so considered in government and analytical circles.

All spices should be kept in well corked bottles or other closed receptacles.

SPICE-BUSH, or Benjamin Bush, or Wild Allspice (*Benzoin æstivale*), a large shrub native to the eastern and central states, whose aromatic twigs have frequently served for tea making, especially in earlier days when money and grocery-stores were less widely distributed. The twigs were boiled for fifteen minutes or more and the resulting beverage was sweetened and modified by the addition of milk. The infusion is distinctly stimulant. The dried berries have also been used both medicinally and for spicing puddings, pastry, and preserves.

SPINACH, a vegetable cultivated in many varieties which is becoming increasingly popular both boiled as greens and in soups. When well cooked, it is about as health-giving an article as can be imagined.

It is rendered sweeter and more delicate (and thus almost universally liked) by cooking with a fair proportion of lettuce—the generally discarded outside leaves of the latter can thus be very profitably used (this suggestion appearing also in the article on LETTUCE.)

Broad, thick leaves are the style generally preferred, and it is essential that only young leaves be purchased, for the old are coarse and not very palatable except after long and careful cooking. The best varieties include the Broad-leaved, the Savoy (a very crumpled leaf), and the Prickly. The title of the last-named, a very hardy and productive type, refers to its seeds, not to its leaves. Much of that sold in northern stores during the winter comes from the southern states.

"*New Zealand spinach*" has no botanical relation to the ordinary spinach but its leaves are sold under the same general title and are used in the same way. Its greater coarseness is overlooked because of the advantages it offers to the grower (whether commercial or private)—it is much larger, withstands the summer heat (which usually spoils the quality of ordinary spinach), produces well in dry localities, and gives a succession of crops of the young shoots and leaves. Its spreading branches frequently exceed three feet in length.

Fresh spinach needs very thorough cleansing before cooking, as its rough, low-lying leaves generally collect a good deal of sand and other soil particles. Canned spinach should always be cooked before eating.

The French call spinach "belly broom" because of its value as "roughage" and also "death of the butter" because (as best liked in France) of the large amount added to it in cooking.

"French spinach," or "Mountain-spinach," is ORACH (which see).

SPINAGE-DOCK. See the article on SORRELS AND DOCKS.

SPOT (fish). See LAFAYETTE.

SPRAT, one of the smallest of the herrings, five inches being the normal maximum length. It is a very delicate little fish, caught in abundance in many parts of Europe, and extensively consumed there fresh and smoked, both under its own name and under various other appellations. It upholds much of the glory of the English WHITEBAIT (which see) and it is the Norwegian "anchovy" and "sardine" (see SARDINE). "Kilkies," exported chiefly from Baltic ports, are also sprats, cured and spiced.

In England the sprat's prolific abundance socially offsets its fine eating qualities—it is a lowly fish under its own title (its participation in the comparative aristocracy of whitebait being of only recent knowledge)—but it has made its mark on the English language and English customs. "Sprat weather" is that of dark autumnal days, when sprat catching is commonly at its height, and London's "Lord Mayor's Day," November 9, is colloquially known as "Sprat-day" because the sprat season is then considered officially open.

The title "sprat" is locally applied to the young of the common herring and many other small fishes.

SPRUCE BEER, a slightly fermented beverage, of the same general character as ROOT BEER (which see), flavored with spruce essence (or the green cones or young shoots of the spruce) and various spices.

SQUAB, a young pigeon. There is a constantly increasing demand for squabs, particularly in the large cities. The birds are at their best when about four weeks old, i.e., after they have grown plump and before they have left the nest—for, unlike chicks, they are quite helpless when young. At that age their flesh is milky and very delicate, but once they have learned to get out of the nest and have commenced to walk or fly about, it rapidly loses the special squab characteristics and soon becomes lean and ordinary "pigeon." Good specimens will, at four weeks old, average eight to twelve pounds or even more to the dozen, weighing sometimes as much as their fully matured parents.

Squabs, three weeks old

Size, plumpness, and light-colored flesh are the points to be observed in buying squabs. They should be very carefully handled, for their flesh damages easily. They

Brown Bros.

A California squab-house

were formerly obtainable only in summer (and they are still most plentiful then), but professional squab-growers now supply them to the market all the year.

SQUASH, a term applied to the edible fruits of many varieties of gourds, found in divers sizes, shapes, and styles. The most famous of all is the Pumpkin (which see). The others are classified as "summer" and "winter" squashes, the latter being generally of late autumn ripening.

Summer squashes are chiefly of *Cucurbita pepo,* the species which includes the true pumpkin and the Vegetable Marrow (which see). Among other well-known kinds are the Cymling, or "patty-pan," or "scalloped," or "white (or yellow) bush," both white and yellow fleshed (the latter known also as "custard squash"), and the Summer and Crookneck, also white and yellow. These are usually small and are commonly consumed unripe and fresh as a vegetable—stewed, baked, and fried—the seeds being cooked with the flesh.

Winter squashes are chiefly of *C. maxima* and *C. moschata,* especially the former. They are generally larger, and firm and yellow in flesh, and are eaten ripe both as a vegetable and in pies, etc., the seeds being removed before cooking. The pie is generally called "pumpkin," except in New England, where it may be frankly labeled "squash pie."

Winter squashes are serviceable right through the winter and can often be held until the next summer crop, if taken before the frost has touched them and stored, preferably in tiers, each one free, in a moderately warm, dry place. The numerous varieties include the "Mammoth" strains of *C. maxima,* which attain enormous sizes; the Canada (or Winter Crookneck); the Hubbard, from dark green to orange and from moderately smooth to very rough and warty, with dark yellow, rather dry flesh; the Marrow; and the Turban, of many colors and sizes, with sweet, floury, orange-colored flesh. Their average food value is good—chiefly carbohydrates, with a fair percentage of protein and a little fat.

SQUID. The squids of general human consumption are small species of the ten-armed cuttle-fish, cousin to the notorious octopus. Their chief use in North America is as bait, but they are relished as human food in Mediterranean countries and there is a limited demand for them among foreign residents here. They are marketed fresh, dried (whole and pulverized), and canned. The fresh squid is cooked like fish. It is especially good if cut in small pieces, dipped in egg-batter, deep-fried in hot oil, and served with stuffed baked or fried sweet peppers. The dried squid may be eaten raw, or soaked in water or vinegar and then boiled or otherwise prepared. The powdered product is commonly used in soups. Canned squids are generally put up in their own inky fluid.

Squashes of all shapes and sizes

SQUIRREL. The tree-frequenting squirrel, a rodent with slender body and bushy tail, of familiar appearance and habits, and of many sizes and colors, is found wild in every part of the world except Oceania. By residents of the larger cities it is best known as the protected, semi-domesticated pet of public and private parks, but it is also esteemed by many people as a very desirable small game-animal. The ground-squirrels of the western states must be placed in a separate class as pestiferous destroyers of grain and fruit crops.

STAR-APPLE, a tropical-American fruit about the size of an apple, with skin and flesh varying from white to purple (see the color-page opposite 244). When cut crosswise, the fruit presents an exceedingly attractive appearance—the pulp, of "crushed raspberry and cream" color, marked by a central star of translucent "jelly" holding several large, flat, brown seeds. The flavor is excellent if the fruit is tree-ripened. Otherwise, it seems peculiar to the average American palate.

STARCH, one of the most important and widely diffused of the proximate principles of the vegetable kingdom, and an abundant and economical human energy-food. It is formed from the water obtained by the roots from the soil, and the carbon dioxide drawn from the air, the combination being effected by the action of the sun on the chlorophyll of the leaves and stems. It is built up in "grains" of varying size—even the largest being microscopically minute.

Despite the presence of starch in a multitude of seeds, fruits, and roots, frequently in large percentage and sometimes in comparatively pure state, there are only a few plants furnishing it in sufficiently large quantity and growing in sufficient abundance to be profitably utilized for its commercial production. The best known of these are corn, wheat, rice, and potatoes. After them come manioc (or cassava) for both edible and industrial purposes, and sago and arrowroot for the former only. The greater part of the American output is obtained from corn; that of Europe from the potato.

There are two principal grades of starch: (1) that used for food, in starch form and converted into sirups and sugars; and (2) that employed for manufacturing and industrial purposes. The latter may be roughly subdivided into (a) laundry starch, (b) starch for the finer manufactures, and (c) starch for calico manufacture, etc.

Pure starch is a glistening white or yellowish white powder with a characteristic feeling when rubbed between the fingers. It is insoluble in alcohol and ether and almost so in cold water. Warm or hot water is absorbed in considerable quantity, the starch granules swelling to (comparatively) large size. Continued sufficiently long, steeping or boiling produces a pasty, or colloidal, condition in which the starch is more easily converted and distributed by the human digestion.

See the special articles on ARROWROOT, CORN, MANIOC, POTATO, RICE, SAGO, WHEAT, and their products (as CORNSTARCH and CORN-SIRUP); also that on GLUCOSE, and the general article on FOOD VALUES.

STARCH-SUGAR. See CORN-SUGAR.

STOCK (for soup). As a culinary term, the word "stock" signifies a strong soup or broth which serves as the foundation of most soups and sauces in all professional and many home kitchens. It is made variously of meats, vegetables, and other appropriate articles. Lean meats only should be used and a fair proportion of bones is essential, as these supply the gelatinous ingredient which acts as a natural thickening. The trimmings of roast and baked meats are especially desirable additions because of their rich, meaty flavor.

STOCK-FISH. See the subhead in the article on COD.

STRAWBERRY, a fruit native to both the Old and New worlds, greatly improved by cultivation and now found in numerous choice varieties.

Those grown in the United States are chiefly hybrids developed from the large, mild-flavored Chile strawberry of the Pacific Coast region of South America (rep-

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Gathering strawberries in Mexico

resented on our Pacific Coast by a similar wild variety), crossed to some extent with the smaller, more highly flavored wild Virginian, or "Scarlet," of eastern North America. The first important cultivated variety of the modern industry of both hemispheres was the European-developed "Pine"—which may have been either a form of the American Chile or a cross of the Chile and the Virginian.

Modern European cultivation is both of the same strains grown here and of hybrid descendants of two native European species—the Hautbois and the Alpine—the latter being well distributed throughout temperate Europe and Asia and represented here also in wooded districts of the New England states.

The Alpine (known also as the "Perpetual") is a small fruit compared with the average American strawberry, its chief merit being its longer average bearing season. This is, however, now equaled by developed selected forms of domestic varieties.

There is a great range of berry size, shape, and quality. Also in methods of cultivation—in hill, or "bush," fashion, no runners being allowed to set; in hedgerows, with runners severely limited; and "matted," with the runners given much latitude and sometimes entirely covering the field. Again, small growers may permit the plant to live and bear for several years, but large producers generally limit it to only one or two crops—it is then remorselessly ploughed under to make way for the next rotation planting.

By care in choosing soils, seasons, and other conditions, the strawberry is now successfully grown in every state—north and south, east and west—with Tennessee, Arkansas, and California leading—and great quantities are canned and otherwise preserved both for domestic use and exportation. Only a comparatively small percentage of the crop lends itself well to canning, but its canning season is the longest of all California small fruits—extending from early in May to late October.

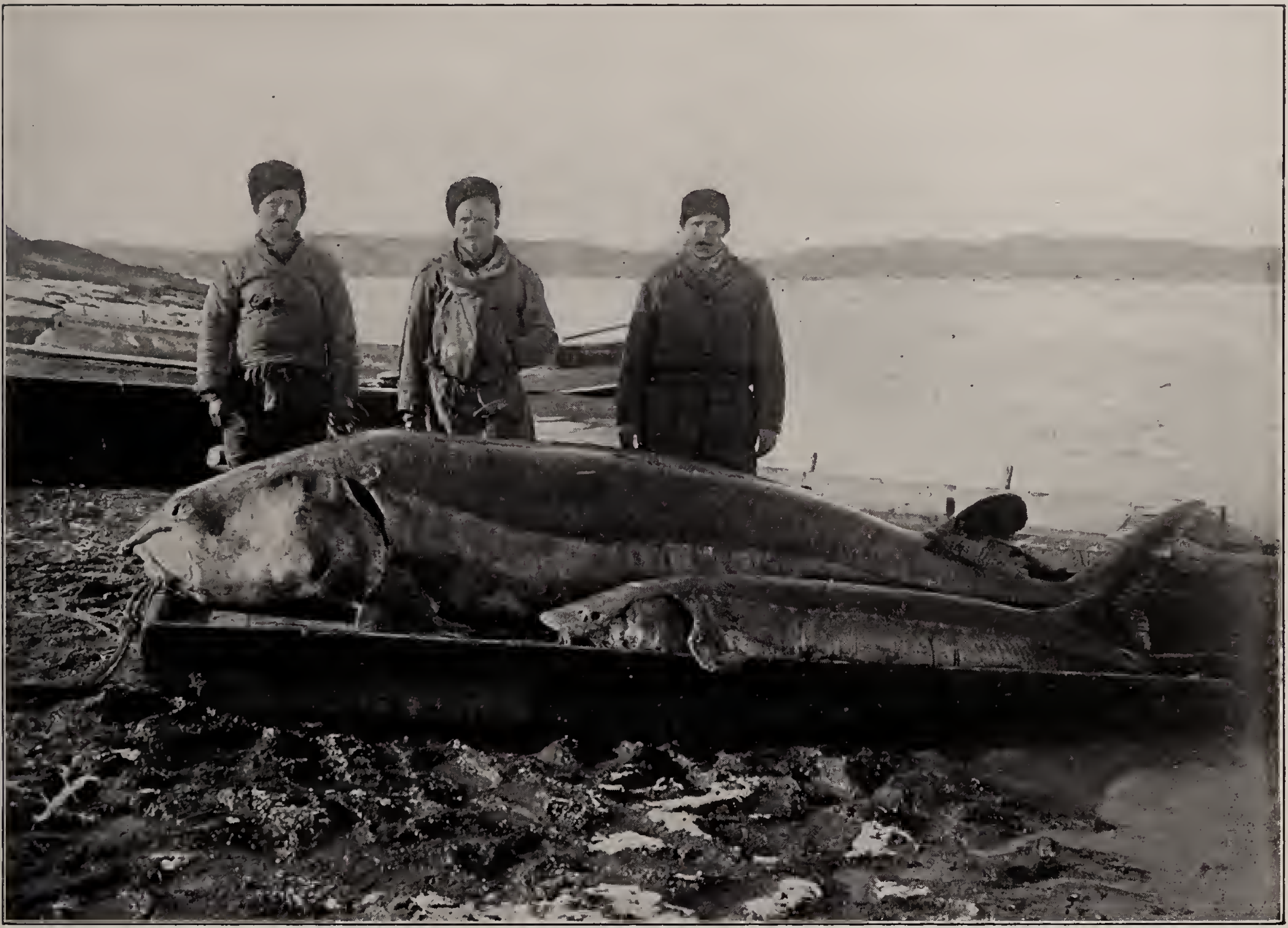
See also the color-page of BERRIES facing 42.

STRAWBERRY-PEAR, the fruit of *Hylocereus tricostatus* (or *Cereus triangularius*), a high-climbing cactus common in Mexico and parts of the West Indies. It is bright red in skin and somewhat pear-shaped, its whitish pulp slightly acid and suggesting the strawberry in flavor. In addition to its consumption fresh it is an important ingredient of the West-Indian pepper-pot.

STURGEON, a large fish found in several species of differing sizes and values in temperate regions of the northern hemisphere, and esteemed both for its flesh and its roe—especially the latter, known as CAVIAR (which see).

The most famous are the Russian fishes—particularly the small, long-snouted sterlet, which rarely exceeds three feet in length; the seuruga, resembling the sterlet in its long snout, but attaining twice its size; the osseter, which reaches twelve feet; and the huge beluga, or huso, or hausen, or "great white sturgeon"—often weighing 1000 pounds and occasionally reaching a length of twenty-four feet and a full ton in weight—a fish of that size yielding as much as 360 pounds of caviar. It is estimated that the beluga is not really old until it has passed its second century.

The most valued of the sturgeons of North-American waters is the "lake," or "rock," or "red" sturgeon of the Mississippi Valley and Great Lakes region. It averages about fifty pounds in weight but large specimens have greatly exceeded that figure. Others of importance are the big "common sturgeon" of both the North Atlantic coast and coastal rivers—from six to eight feet in average length, and occa-



Russian Caviar Co.

A beluga (the large fish) and a sterlet

sionally weighing 500 pounds; the "white," or "Columbia River," or "Oregon," or "Sacramento" of the Pacific Coast and its rivers—a still larger creature, which has been known to exceed a length of thirteen feet and a weight of 1000 pounds; and the small "white," or "shovel-nosed," or "hackleback," of the Mississippi Valley.

In Europe, sturgeon-meat is eaten both fresh (generally stewed) and smoked, the latter known as "balyk." The fresh flesh is firm and of good flavor, but a little over-oily. In America, the chief consumption is of the smoked product.

In England, the sturgeon was at one time known as the "royal fish," its consumption being confined to the king's table and those individuals or cities holding the royal permission to eat it. The law still stands though obsolete in practise.

"SUCCORY," a corruption of Chicory (which see).

SUCCOTASH, a stew of green corn and green lima beans, now popular in canned form. Both the principle of the dish and its name are borrowed from the native Indians. Early Puritan writers—one of whom described the dish as being "seethed like beans"—spelled its Indian name *Sukquttahhash.*

SUET, a term applied to the hard, white, flaked fat of the loin and kidney regions of beef, mutton, and other carcasses. In cookery, beef suet is always understood.

SUGAR. This article is devoted to cane and beet sugars, the two forms of sucrose most important to western civilization. They constitute the ordinary sugar of our everyday use—the refined products being identical in chemical composition, appearance, and flavor. Corn-sugar, invert-sugar, maltose (malt-sugar), maple-sugar, milk-sugar, palm-sugar, and sorghum are treated under their own heads. For fruit-sugar, grape-sugar, and starch-sugar, see respectively LEVULOSE, GLUCOSE, and CORN-SUGAR.

The present popular consumption of sugar is a recent development for both Europe and America. Small quantities were regularly imported into Europe from the Orient before the commencement of the Christian era, coming with spices and other (then) costly products, but for many centuries it was employed only as a medicine. Later, toward the end of the Middle Ages, it was eaten in various ways as a sweetmeat and with, and in, other foods, remaining however an expensive luxury to be enjoyed only by the well-to-do. Consumption spread to the general community early in the seventeenth century, but the per capita was even then (and for nearly another 200 years) very small compared with that of to-day—it was still used sparingly as a seasoner and sweetmeat, not as one of the main components of the diet. Less than 100 years ago the annual American consumption averaged less than nine pounds per capita—against the ninety-three or ninety-four pounds of the present generation.

Another story is that of Asia. There, the manufacture and food consumption of sugar from the sugar-cane and other sources probably antedates all authenticated history—reference is found to it in the Sanskrit of ancient India. Its present English title is derived from the Sanskrit *sarkara,* modified by its course through various other languages—the Prakrit *sakkara,* then the Persian *shakar* and the Arabic *sukkar,* the Greek *sakchar,* the Latin *saccharum,* and the French *sucre*—of which last-mentioned the Anglo-Saxon "sugar" is an easily understood change to better suit the English tongue.

Sugar was formerly dealt with rather harshly by medical experts, it being charged with injury to both teeth and stomach. It is now recognized as a food of great value. Used in moderation, it is an excellent body-fuel for children, and is particularly important in adult dietaries to supply energy under conditions of continued physical strain—as for soldiers on long marches.

This endorsement is particularly directed to sugar eaten with other suitable foods, taken in beverages, and contained in chocolate and simple puddings. It does not extend to an extensive diet of sweetened articles such as pastry. Neither, ordinarily, should sugar be eaten by itself in any considerable quantity, for the result is liable to be a degree of stomach irritation that may seriously interfere with digestion.

Asiatic peoples, excepting the Japanese, eat the most sugar. It is an important part of the daily diet of hundreds of millions in the Orient, entering into the composition of a great many of their foods—soups and meats and vegetables, in addition to cakes, pastries, pickles, and preserved fruits — frequently (to western palates) in a cloying percentage.

Of the western world, the United States is the greatest consumer, Great Britain being next in line. The smallest per capita is in Italy, with only about seven and a half pounds, and in the Balkans with less than seven pounds.

The Sugar-cane

The sugar-cane was carried by the Arabs into northern Africa and thence it reached Europe some time during the eighth century. Its cultivation early became

HARVESTING SUGAR-CANE

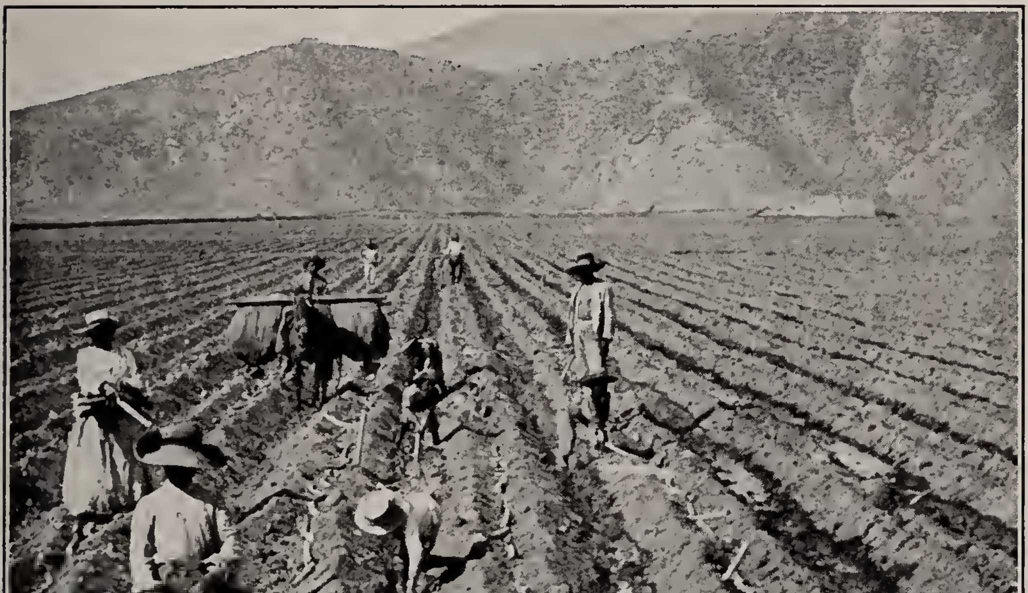
an established industry in Sicily. Venetian historians state that by the twelfth century their countrymen were importing sugar from Sicily at a lower price than they could obtain it from Egypt, where it was then extensively made.

Rivaling the Sicilian plantations were those of southern Spain—extending thence to Portugal, Madeira, and the Canary Islands by the beginning of the fifteenth century. From Gomera, one of the Canaries, the cane was introduced into the West Indies by Columbus in his second voyage to America in 1493. By 1518, the Spaniards were operating twenty-eight plantations in San Domingo and an abundance of sugar was manufactured, the island for a long period furnishing the bulk of the European supply. Barbados, the oldest English settlement in the West Indies, began to export in 1646, and as far back as the year 1676 the trade required ships of 450 tons burden. To-day the cane is cultivated in every tropical and semi-tropical country.

Louisiana is the chief of our sugar-cane states, its output usually exceeding half of our annual harvest of four to six, or more, million tons of cane—a crop which yields several hundred million pounds of sugar and a good many million gallons of molasses and sirup.

The plant is usually raised by trenching pieces of the cane. It grows to a height of from six to ten feet, in some parts to fifteen or more feet, with a diameter of from one to two inches. A field of it resembles a flourishing stand of Indian corn prior to heading.

The cane is generally ripe for harvest at from twelve to sixteen months' growth. It is cut close to the ground just before its flowering time, being then heaviest in juice. The stubble develops new cane, the plants thus continuing, if so permitted, for several years. As however they gradually become weaker, it is customary to plow the stubble out after the second, third, or fourth cutting—according



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Setting out a new sugar-cane field—distributing sections of cane in long parallel trenches—a scene near Santa Clara, Peru

The mill of a Cuban sugar plantation—receiving a train of cars loaded with sugar-cane

to the strength of the soil and the plantation policy—and then to start afresh with new slips.

The tops are sliced off the cane immediately after cutting and the leaves stripped —or the stripping may be rendered unnecessary by the easier, but unwise, method of burning over the plantation just before harvesting—only the denuded stalks being transported to the mills. An average analysis of high-grade stalks in this condition shows about 72% water, 18% sugar, and 10% woody and vegetable matter. One hundred tons of cane-stalks will yield from seven to fourteen tons of sugar.

Commercial interests and conditions have made the United States the greatest cane-sugar importer. The country consumes the entire home beet-sugar output—but our importations are chiefly, sometimes almost exclusively, of the cane product and principally from Cuba (the most important source), Porto Rico, and Hawaii.

Beet-sugar

Until only two or three generations ago, Europe and America relied almost entirely on the sugar-cane for sugar. Within that period the sugar-beet has destroyed its monopoly and vies with it for supremacy.

The Chinese have made a crude sugar, chiefly in invert form, from beet juice since very early days, but the European discovery of the crystallizable sugar content of the beet and other roots is attributed to Margraff, a German scientist, in 1747. He did not, however, devise a commercially successful method of extraction and little more was heard of the idea until fifty-two years later when Franz Carl Achard, one of his pupils, submitted a method to the Institute of France.

The Institute appointed a committee to investigate, and they reported favorably. The result was the starting of the now gigantic beet-sugar industry, a small factory being opened by Achard near Breslau in 1801.

A great impetus was given in 1810, when Napoleon I offered a prize of a million francs for the best method of manufacture, and further encouraged home cultivation and manufacture by large bounties. Increased growth and greatly improved methods resulted, but many years passed before the product was brought to the point of equaling cane-sugar in quality and appearance.

International

Feeding sugar-cane into the crushing-machine

Though the industry was destined to grow to such proportions, it is interesting to note that not even the example and attitude of Napoleon satisfied the scoffers of his generation—they could not believe that the homely beet would ever vie with the tropical cane as a sugar producer. The literature of the times contains, for example, a caricature, published in 1811, ridiculing the emperor and his son, the little King of Rome. Napoleon is represented as sitting in the nursery squeezing a beet into a cup of coffee, and near him is the "King of Rome" putting another root to his mouth—his nurse telling the youngster to "Suck, dear, suck!—your father says it's sugar!"

After the downfall of Napoleon the industry languished for some years, but improvements were made from time to time and by 1830 it had become firmly established. The tenth year thereafter saw a production of 50,000 tons, and thenceforward developed a tremendous increase which brought widespread financial disaster to cane planters in the West Indies and other tropical countries. By 1900 western civilization was consuming two pounds of beet to one pound of cane sugar. The pendulum has since swung the other way. The repeal of beet-sugar bounties put competition on a more even basis; the world war resulted in a serious setback to both the French and Russian beet-sugar industries; and the improved conditions in Cuba, Porto Rico, Hawaii, and the Philippines have very largely increased the output of the cane product.

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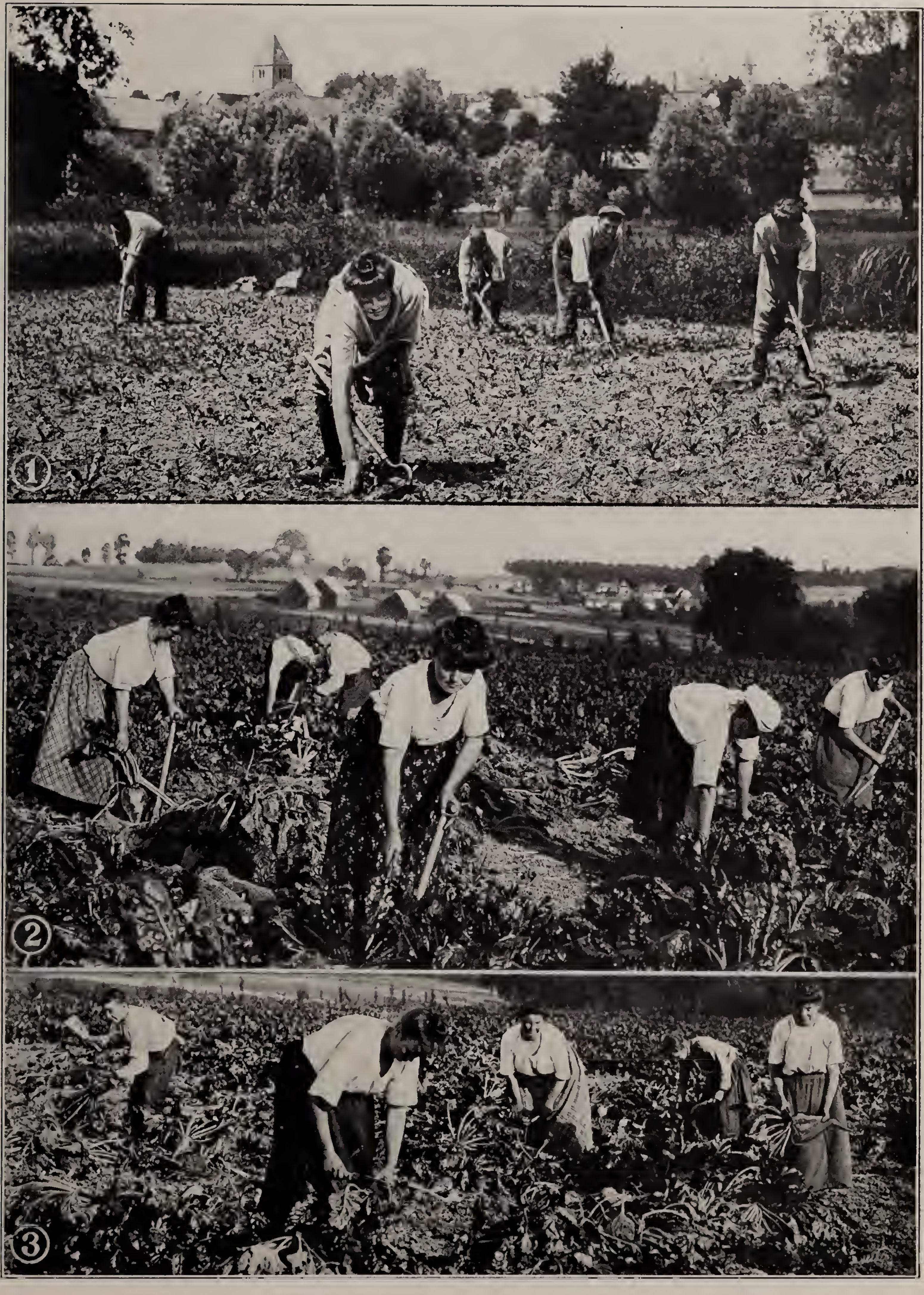
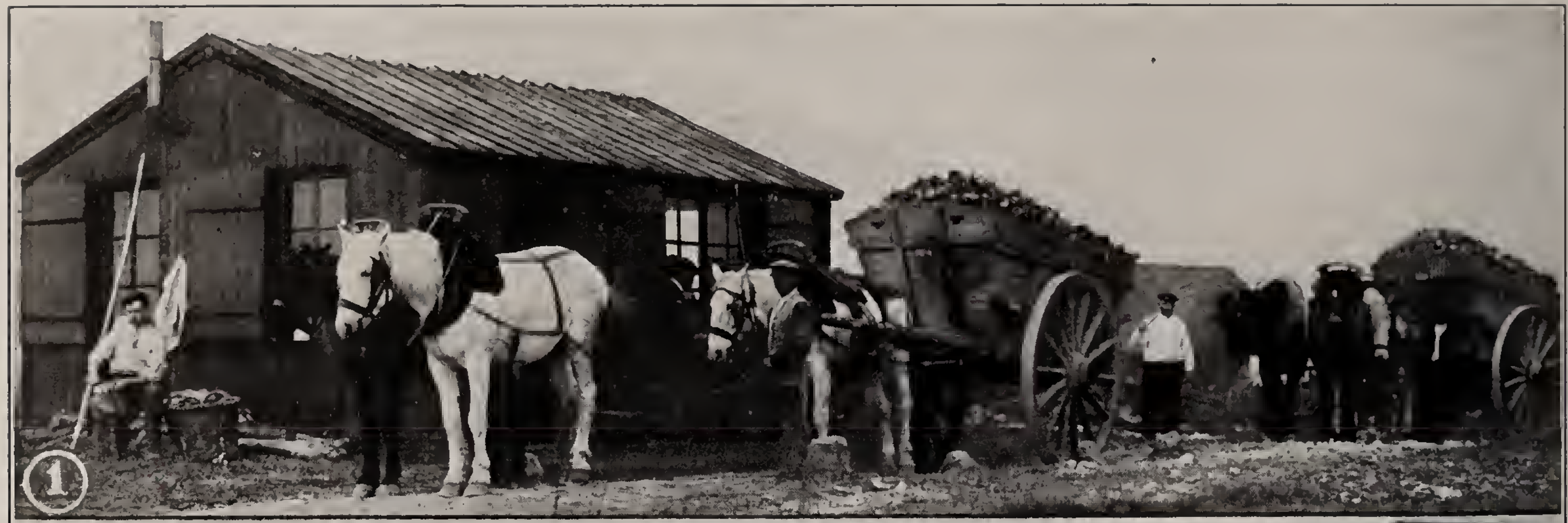
Unloading cars of sugar-beets, Colorado

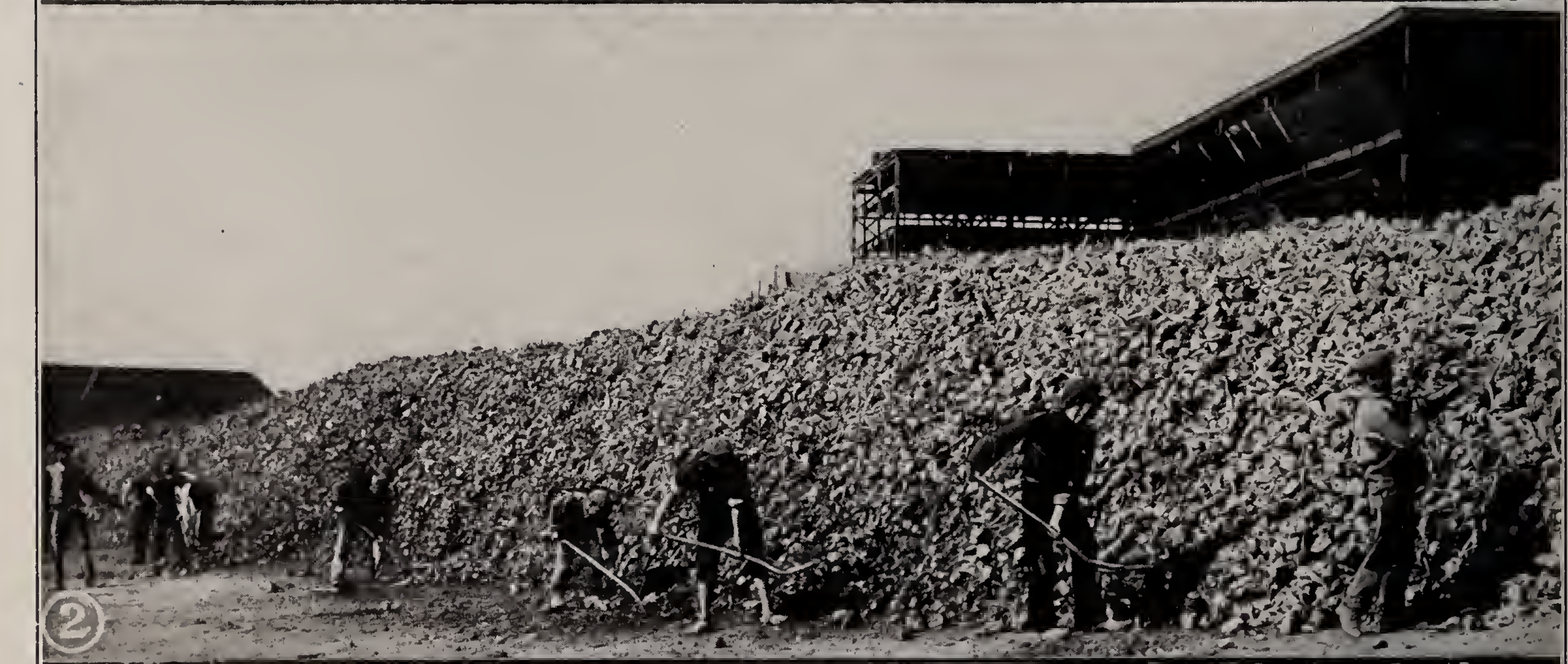
The beets used for sugar-making are raised from specially grown and carefully selected seed, for their value depends not on their size but on the density of their juice—sugar-factories commonly paying the grower according to the sugar percentage in an average of his crop. The white elongated type is generally conceded to be the best and a root-weight of from fourteen to twenty-four ounces as usually the most satisfactory.

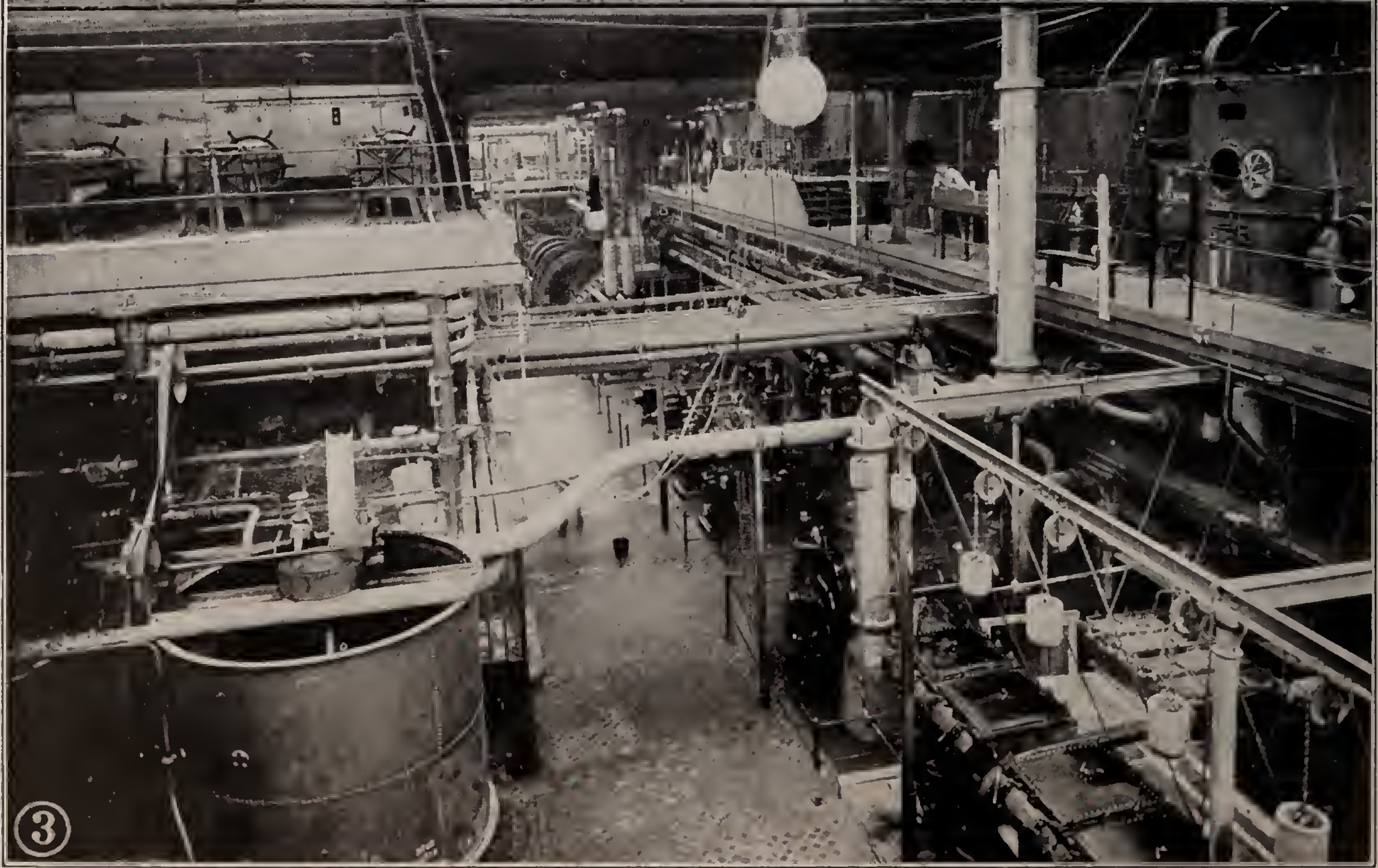
In some parts of France



(1) Weeding the beet fields (2) Pulling the mature beets (3) Cutting off the tops
THE BEET-SUGAR INDUSTRY IN THE NORTH OF FRANCE

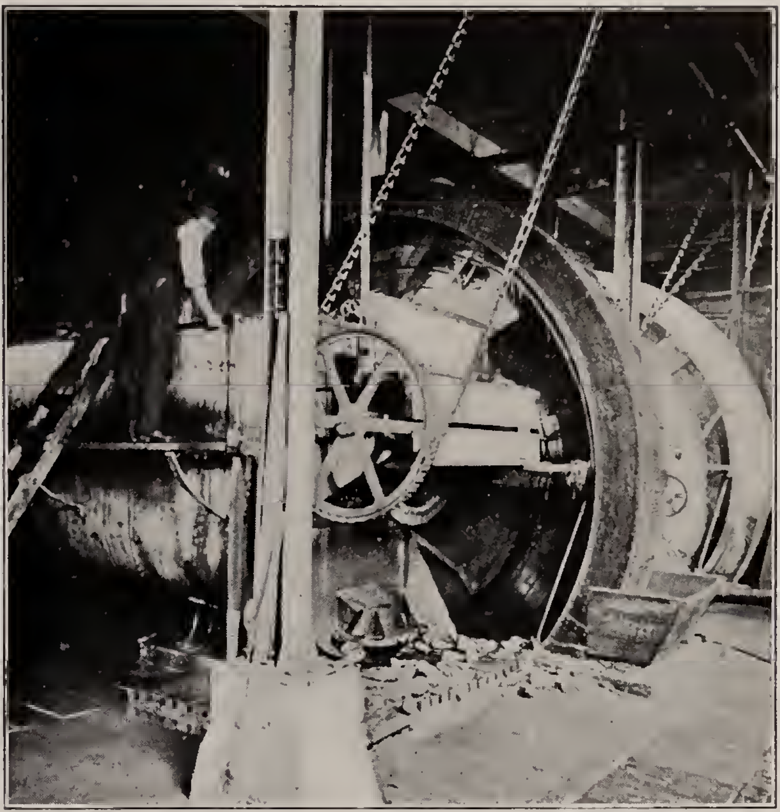






(1) Weighing the wagons of beets as delivered at a sugar-factory (2) Piling up the beets after unloading the wagons (3) General view of the diffusion vats, or cells

THE BEET-SUGAR INDUSTRY IN THE NORTH OF FRANCE



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Washing the beets with revolving brushes

and Germany the labor of carrying the beets to the mills is avoided by a system of underground piping from the beet-farms to a central factory. Each district has a diffusion apparatus to extract the juice, and this is treated with a small quantity of lime and pumped into pipes leading into large vats in the factory.

One hundred pounds of the best Silesian roots will yield an average of from ten to twelve pounds of sugar of various qualities.

The cultivation of the sugar-beet was first taken up in the United States in 1880, American interest having been developed by the exposition of machinery and processes at the World's Fair in Paris in 1878. Congress called for a report on the subject and, following its receipt, farmers in several states added the sugar-beet to their crops—receiving for a time encouragement in the form of bounties by the federal government and various state legislatures. In the beginning, inexperience and want of adequate machinery told heavily against success, but these drawbacks were soon surmounted and the annual United States output now averages more than 600,000 tons. Colorado, Michigan, Utah, California, and Nebraska are the chief producing states.

Popular sentiment favors cane-sugar in the abstract. In actual practise, the refined products are indistinguishable. As a result of the crude processing of the first beet-sugar, some prejudice survives against its use for preserving, but this is entirely unwarranted.

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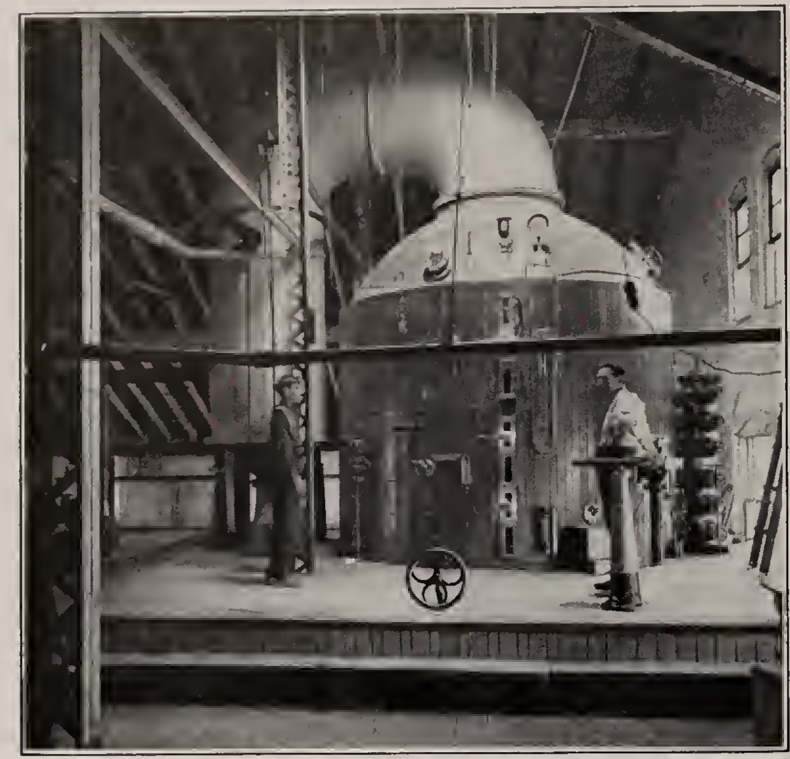
Beet pulp and juice flowing into tanks for diffusion with water

The Manufacture of Raw Sugar, and Sugar Refining

Two different processes are in use for extracting cane juice — "milling" and "diffusion." The former is the "old" way, but it is still the one most generally employed except in a few localities particularly suited to the diffusion method. Diffusion is used exclusively in treatment of the sugar-beet.

By the milling process, the juice is obtained by crushing the cane-stalks in a succession of roller-mills.

The diffusion process recognizes the fact that in both cane and beet-sugar



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Vacuum-pan for crystallizing

juice there are two distinct substances—one that crystallizes and becomes sugar, and another that is gummy and will not crystallize. Crushing the cane in the mill extracts both together and the entire product must be treated and separated afterwards. Diffusion takes out little except crystallizable juice, thus obtaining a liquid that gives a maximum of sugar and a minimum of sirup.

For the diffusion process, the cane-stalks are first sliced thin by special cutting machines. The beets may either be similarly sliced, or crushed into pulp. The "chips" (or pulp) go then to a series of large tanks, called "diffusers" or "cells," where steam or water saturation extracts the sucrose, the liquid being forced from one tank to the other, from those containing the partially exhausted chips to those filled with fresh chips, the process being practically continuous.

The juice obtained by either process is of a sweetish flavor and the appearance of sweet cider. It is pumped into tanks called "defecators," where it is treated with milk of lime and carbon dioxide in order to remove impurities. It then commonly undergoes two or three other purifying processes—by evaporation, through filters, etc.—before it is ready for the vacuum-boilers, where it is condensed to sirup, and the vacuum-pans, where it crystallizes.

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Centrifugal machines, to separate the sirup from the sugar crystals

Next comes the separation of whatever proportion of uncrystallizable sirup is now mixed with the crystals. This is now commonly accomplished by centrifugal machines — wide-sided, cylinder-shaped baskets of fine mesh revolved at high speed inside iron casings—the sirup being ejected by their action into the casings, whence it drains into a receiver. The "cured" sugar left is known as centrifugal or "raw" sugar, or locally as "brown sugar." The sirup, if of the cane product, is "molasses." When the centrifugal process is not used, the raw sugar is known as "muscovado."

Molasses sugar is that obtained by further boiling of the molasses. The uncrystallized residue of this process is known as "blackstrap molasses."

The exhausted beet-pulp is sold as cattle-food. The sugar-cane refuse,

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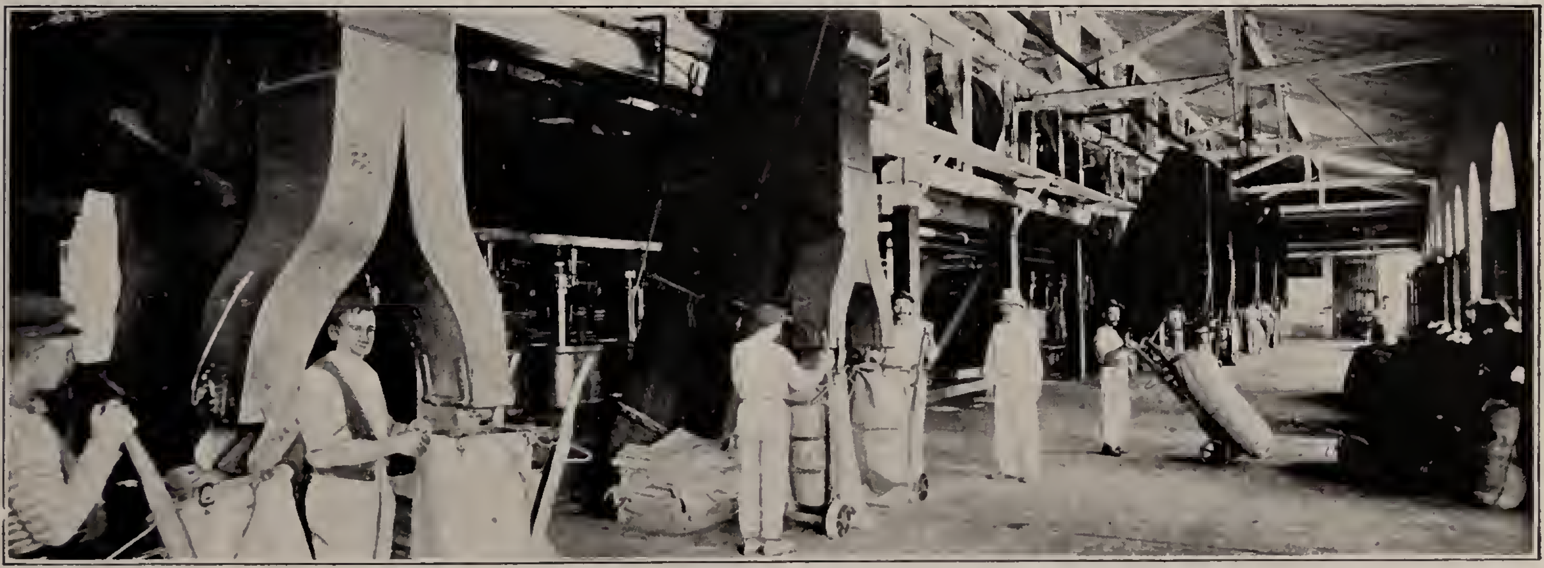
A primitive sugar-mill, Panama Canal Zone

known as "bagasse," is used chiefly as fuel—being consumed in sugar-mill operation.

Practically all of the sugar imported into the United States—whether of the beet or cane—comes in as raw sugar to be refined here. In refining, it is washed by mixing with water and then again dried by centrifugal machines, further cleansed in defecators and by passing through cloth filters, and cleared of coloring matter by bone-charcoal filters. (In American-made beet-sugar, sulfitation takes the place of the bone-charcoal step.) The clear sirup obtained is next boiled to crystallization in a series of vacuum-pans. At this point, the process varies according to the size of the sugar to be produced. For granulated or powdered sugar there follows a centrifugal separation of sirup, further drying in big rotary chambers, and sieving and grinding to the desired size. Confectioner's sugar is powdered sugar ground especially fine. For the ordinary pressed tablet (or cube, or "lump") sugar, the moist crystals from the centrifugal separators are mixed with a little colorless sirup to serve as a binder and run into molds of the desired shape and there compressed. The more expensive cut tablets are made by filling the mushy "magma" from the vacuum-pans into frames divided into compartments about an inch wide, the frames after cooling being placed in turbines, where brisk revolving brings out the "first" sirup. A cleansing liquid is then added and further prolonged revolving brings out the "last" sirup. Next comes the drying in the ovens and, finally, the bars are cut by special machinery into the desired size.

The refining of beet and cane sugar is practically, or entirely, identical in methods, but beet-sugar is never sold "raw" as its unpleasant native twang is only



Bagging sugar in a Cuban mill

dispelled by complete refining—whereas good raw cane-sugar (the "second," or "yellow") is so delightful in flavor that many people enjoy it as a confection. The cane flavor also results in cane-molasses and the final uncrystallizable residue of cane-sugar refining being consumed to the last ounce (see Molasses and Sirup).

SUGAR-MELON, a variety of cantaloupe, nearly round, with silvery-grey, ribbed exterior, and thick, aromatic, very sweet flesh. It averages about five or six inches in diameter and weighs generally from 2½ to four pounds. It was long experimented with as a promising commercial source of sugar.

SUNBERRY, the sweet and flavory fruit prolifically borne cluster-style by an annual plant, a new species of the *Solanum* genus. It averages one-half to three-quarters of an inch in diameter, and is dark blue to black or orange in color. The blue-black berries much resemble blueberries. They are generally consumed in pies, sauce, and preserves. They are also excellent for eating raw if thoroughly ripened —i.e., if left on the plants to mature for two weeks after they have achieved full color.

SUNFISH, the common title of a genus (*Centrarchidae lepomis*) of small pan-fishes of fresh waters east of the Rockies. The best-known is the little Common sunfish, or "pumpkin-seed," but the only species commercially important is the "bluegill," or "blue sunfish," which particularly favors small lakes and sometimes weighs more than a pound. The huge "ocean sunfish," or "headfish,"—a creature nearly all head!—is of a different family (*Molidæ*).

SUNFLOWER SEED and OIL. Sunflower-seeds are seldom eaten here nowadays —the plants being grown chiefly for ornament or for silage, and their seeds fed to poultry—but they constituted one of the earliest of American foods, for the Indians relished and consumed them in pre-Columbus ages—the sunflower, now of universal citizenship, being native American by origin. They are nutritious and of pleasing flavor, with a "green nut" tang. In recent generations they have found their chief commercial importance in Russia, which utilizes a very great quantity—the large seeds for eating, both raw and roasted, and small sizes for their oil, which is valued for table and cooking purposes, and industrially. The best grades of oil are pale yellow, nearly odorless, and mild and agreeable in flavor—fully equal in quality to olive oil. The Black Sea provinces constitute the center of the industry. Sunflower cultivation is also of importance in some other parts of Europe, and in Egypt, Turkey, and India.

SURINAM CHERRY, the red, soft, juicy, aromatic, subacid fruit of a large, decorative Brazilian shrub now cultivated in southern Florida and southern California. It is sub-globose, ribbed, and from half an inch to an inch in diameter. It is eaten both raw and preserved. It makes excellent jelly.

SWEETBREAD, the soft, milky thymus-gland of the young calf and lamb, the former being the more highly esteemed and considered one of the greatest of all meat delicacies. Lamb sweetbreads are too small to be commercially important. The glands are divided into the "throat sweetbread" and "heart sweetbread" (or "breast sweetbread"), the latter being generally preferred because of its special tenderness and larger size. They are most delicate when obtained from a young suckling calf, and they gradually disappear after it is turned out to grass. They should have a clear appearance and should be a little darker than the fat from the same carcass. In France they are developed to large size by special feeding.

The pancreas of the older animal, frequently but incorrectly styled ''sweetbread,'' and also known as the ''stomach sweetbread,'' or ''belly sweetbread,'' is an entirely different gland, but it bears a resemblance sufficiently close to warrant its consideration under this heading. That most commonly retailed is from the beef carcass and is distinguished in some markets by the appellation of ''beef-bread'' or ''beef sweetbread.'' Though not as choice as the true sweetbread, it makes a very pleasing dish if properly selected and prepared. Both careful selection and cooking are essential—the former because beef-breads are frequently too fatty, and the latter because (in incompetent hands) they are liable to be tough.

SWEET CICELY, or Myrrh, a hardy, perennial herb, native to Europe and sparingly cultivated here, with large, greyish-green, much-divided leaves suggesting anise, which are occasionally used as a flavoring agent for soups and sauces. The plant is also, though incorrectly, known as ''sweet-scented chervil'' (see CHERVIL). Other plants locally known as ''sweet cicely'' are those of the *Osmorhiza,* or *Washingtonia,* genus, with thick, edible roots of the same anise-like aroma and flavor.

SWEET-FLAG, a plant of the reed type growing in swamps and on river-banks in the eastern and central states and some parts of Europe. Its rootstock, which has a strong aromatic smell and a biting taste, was at one time freely used for seasoning but is now seldom eaten except as, in some parts, converted into a home-made confection by candying in slices.

SWEET-POTATO, the root-tuber of a creeping vine native to tropical America which thrives wherever the summers are long enough to permit sufficient root growth. It is largely cultivated in our own southern states, the East Indies, the Philippines, and other Oriental countries, and the south of Europe, and is of high importance as a food crop. Enormous quantities of the tubers are consumed in the local areas of cultivation, and the general demand from other parts has greatly increased during the last few years. Our annual crop now runs from seventy to eighty million bushels.

Sweet-potatoes

Botanically, the sweet-potato is not related to the ordinary potato, the plant being instead akin to the morning-glory vine. There is, nevertheless, a marked resemblance in general composition and food character, with superiority accorded to the sweet-potato because of its 4% to 10% sugar content.

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Igorrote girls gathering sweet-potatoes, Luzon, P. I.

The numerous varieties (of light to deep yellow flesh) may be divided into two groups—those that become dry and mealy on cooking, and those which are "moist-fleshed"—of soft, sugary consistence. Large moist-fleshed roots are frequently called "yams," but incorrectly (see Yam).

Sweet-potatoes, after (by modern practise) their first "curing" at a higher temperature immediately after digging, should be stored in a dry place where the temperature is not below 55° nor above 65° Fahr. Great care must be exercised in protecting them during cold weather as they are easily damaged by frost. Some persons bury them in sand, but this is not necessary. If used, it should be perfectly dry.

The curing process has greatly decreased the formerly excessive winter loss by spoilage.

They must also be handled nearly as carefully as eggs—this precaution being particularly essential for those that have not been "cured." Their condition should be well noted before buying, and any that are bruised should be rejected. A bruise at one end will soon spoil the whole. Ignorance on these points is responsible for many of the sweet-potatoes of poor quality served during the winter. With proper attention they can be kept in condition for several months.

Japanese sweet-potato candy is made by rolling mashed boiled sweet-potatoes into little balls and tossing them into boiling sugar-sirup that is ready to grain—there to cook until brown, and then to be taken out and set to cool, becoming crisp as it does so.

A good flour, of economic importance in the Orient, is manufactured from the dried tubers and also by maceration and straining of the grated fresh crop.

SWEET-SOP, or Sugar-apple (see color-page of Tropical Fruits, facing 244), a sweet, aromatic, tropical fruit of the *Annona* genus, roundish or heart-shaped, and somewhat resembling a small, crownless, yellow-greenish pineapple. It is cultivated in southern Florida. The soft, creamy-yellow pulp is sometimes cooked, but it is best raw. It is also delicious served frozen, with or without lemon juice added.

SWORDFISH, a large, powerful, white-fleshed fish found in the Mediterranean, Atlantic, and Pacific, highly esteemed for food, both fresh and salted. Especially good is a swordfish steak—cut to the size of a big porterhouse, and carefully broiled. The fish derives its name from the remarkable extension of its upper jaw into a long, pointed, swordlike weapon with which it kills its prey and attacks its enemies. On our coasts it frequently reaches twelve feet in length and a weight of 400 pounds. Big specimens have weighed 800 pounds. So strong is its sword, and so great the motive power that the fish exerts, that it has more than once pierced the copper-sheathed plank and timber sides of an ocean-going steamship.

SYCAMORE FIG, the fruit of a large, tropical shade-tree, with mulberry-style leaves, famed in ancient writings and mythology, and still a favorite along the roads and around the houses of modern Egypt and Syria. The tree is of the same genus as the ordinary fig, and its fruit—borne abundantly in loose clusters and (locally) an important food supply—is similar in character and appearance, though greatly inferior in quality and generally small. When fresh it is of various shapes and colors, compressed to pear-shaped, pink, pale yellow, etc.

TABASCO, a long-podded red pepper cultivated chiefly in southern Louisiana. It is best known to commerce in the form of ''tabasco pepper sauce,'' a rich, red, concentrated extract generally put up in small bottles with corks shaped for dropping. It is also sold powdered but to less extent.

Tabasco sauce is excellent for flavoring soups and salads, and some people like it on oysters. Only small quantities should be used, for it is very strong. In making sauces, mix with vinegar if a sharp, quick effect is desired. If otherwise, mix first with olive oil and salt, and then with vinegar—the result will be soft and delicate, but still strongly marked by the characteristic tabasco flavor.

TAMALE, a Mexican dish of cornmeal (previously cooked or scalded) or rice or other cereal or pumpkin-flour, meat of any kind, chilies (or sweet red peppers), garlic, etc., preferably steam-cooked together in an oil-dipped corn-husk, but also made into balls and cooked in hot fat. When cooked in the husk, the best method is to line the husk with a stiff dough of the scalded cornmeal and then fill with the mixture of the other ingredients.

TAMARA, a mixed, powdered spice used in Italian cookery, consisting generally of one part each of aniseed and fennel-seed, and two parts of cinnamon, cloves, and coriander.

TAMARIND, the fruit of a magnificent East-African tree, now cultivated in all tropical countries, which under favorable circumstances reaches a height of eighty feet. It consists of thin, brown shell-pods, three-quarters of an inch to an inch in width and of varying length (up to eight inches or longer), filled with an acrid-sweet, brownish pulp, containing acetic, tartaric, and citric acids, and potassium and other salts, and from one to twelve large, flat, hard, glossy seeds. The pods of the West-Indian varieties are generally short, containing only from one to four seeds. They are identical in flavor and properties.

The usual West-Indian method of treatment is to remove the shells and throw the pulp and seeds (together with the network of fiber which covers them) into kegs, usually of fifty pounds capacity, then filling with boiling sirup. The kegs without further preparation are shipped to various foreign markets, to be repacked by local dealers in stone jars, glasses, and boxes. *Sugar tamarinds* is a higher grade packed

Tamarinds

in jars immediately after gathering, in alternate layers of fruit and sugar, and retaining much of the original color and flavor.

Tamarind pulp serves as an excellent addition to chutneys, curries, and similar preparations; and tamarind sirup, highly diluted, makes a cooling summer beverage. Some people enjoy the pulp as a preserve. A pleasant laxative is prepared by mixing it with either hot or cold water.

TANGELO, a new citrus fruit which develops in several forms—thick and thin skinned, smooth and rough, globose and pear-shaped. It is generally yellow of skin and the size of a big ordinary orange. It has been produced by crossing grapefruit with oranges of *Citrus nobilis* (which includes the King, Mandarin and Tangerine, and Satsuma). The best hybrids blend and modify the characteristic sweetness and bitterness of their parents and offer distinctive and agreeable flavors of their own.

TANSY, the very aromatic and somewhat bitter leaves of a strong-growing, perennial, wild and garden plant, employed for both medicinal and seasoning purposes—and the curled varieties for garnishing. It was formerly much used for flavoring omelettes, puddings, etc., and ''tansy pudding'' was a popular Easter dish.

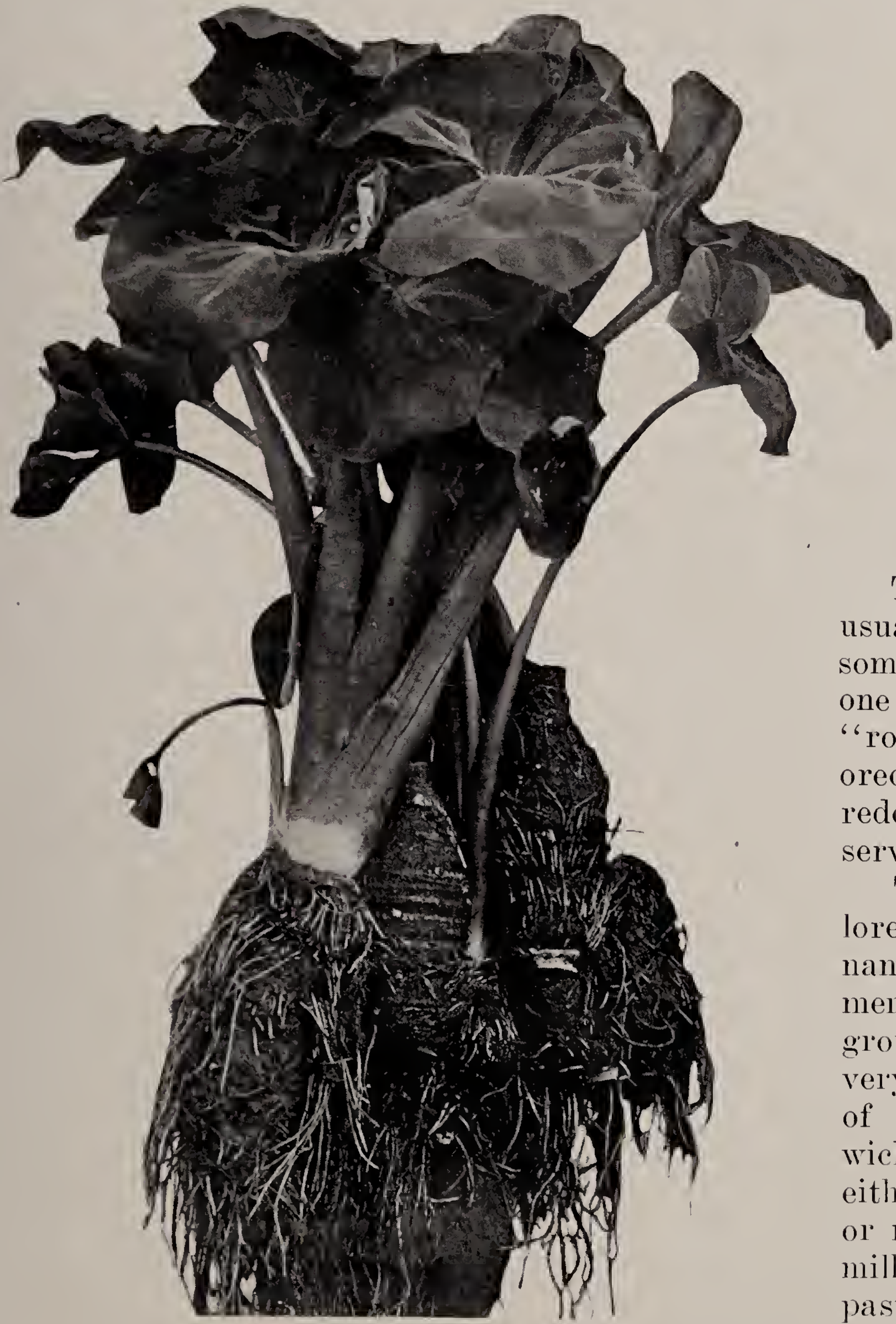
TAPIOCA, a valuable farinaceous food made by heating the starch obtained from the roots of the MANIOC (which see). Under the action of the heat the starch-grains burst and are converted into small irregular masses. This product, after thorough baking to remove all remaining moisture, is Flake tapioca. The pellet form of Pearl tapioca is obtained by forcing the moist starch through sieves of various sizes. Tapioca is also marketed in several sizes of Granulated (obtained by grinding flake tapioca)—listed as such, and also as ''manioca,'' etc.—and in pulverized, or flour, form.

In cooking, tapioca becomes a translucent and nutritious jelly, largely retaining its raw shape, though in increased size. With appropriate additions it makes excellent puddings, and it is also useful for thickening soups.

TARO, or Kalo, or Dranu, or "Eddo," a sub-tropical and tropical plant in several species and many varieties, with big ''elephant ear'' leaves, cultivated for the sake of its large, edible, starchy underground corm (or ''bulb'') and tubers. Raw (or undercooked) taros are acrid, but properly cooked (in various ways — boiled, baked, fried, and in soup) they are both pleasing and wholesome. Their flesh suggests the potato, though generally drier and more flavory. Their starch content is of particularly easy assimilation. The young leaves and stalks also are serviceable as greens — ordinarily cooked with fat meats to neutralize their acridity.

The flesh of the taro is usually white or creamy, but is sometimes yellow, pink, or any one of several other tints. The ''royal taro'' is a highly colored variety, with red sap and reddish skin, formerly reserved for Hawaiian royalty.

Taro is famous in travel lore and literature under the name of ''poi,'' a slightly fermented preparation of the ground, cooked, peeled roots, very important in the food life of the Hawaiian, or ''Sandwich,'' islanders, who eat it either separately, or with fish or meat, or as porridge with milk or sugar. It is a sticky paste—not of inviting appearance to the novice but readily making devotees and of genuinely high dietetic merit. The native etiquette calls for a bowl set between two diners. Each in turn dips three fingers in the poi and twirls them around, then pulls them out and sucks the adhering poi off them.


Taro

The Dasheen (which see) is very closely related to the Pacific taros, as is also the qolqas of Egypt—still grown as it was in the days when Pliny mentioned it. The qolqas (as produced to-day at all events) is greatly inferior to the taro and its consumption is confined generally to the fellaheens, or farm-laborers.

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A taro field, Hawaii

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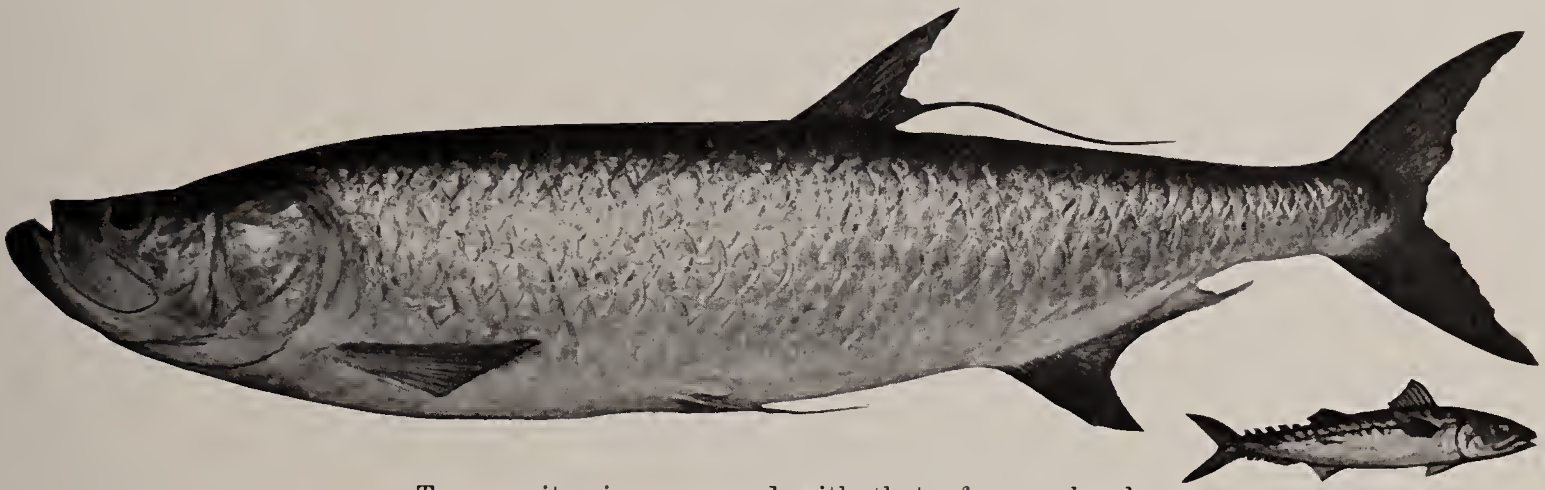
TARPON, or Silver King. The tarpon is one of the most famous of game-fishes —it has been known to exceed a length of seven feet and a weight of 200 pounds— but its flesh (by American standards) is dry and bony. It is found along the greater part of our Atlantic coast, especially to the southward.



Tarpon—its size compared with that of a mackerel

TARRAGON, a perennial aromatic herb used for flavoring vinegar, mustard, pickles, sauces, and salads. It is sold green and dried, the latter both loose and in cans and bottles. A half-pound of green tarragon will flavor fifty or more gallons of tarragon vinegar. Distilled essential oil of tarragon is also commercially made in France.

TARTARIC ACID (commercial), used in the manufacture of baking powder, and as a substitute for citric acid and lemon juice in the preparation of cooling drinks, is made chiefly from crude tartar, or argol (see CREAM OF TARTAR). Its employment in beverages is undesirable as, with the free consumption induced by hot summer days, it frequently proves irritating to both kidneys and intestines. Vinegar is a much better base, conveying the desired acidity in a form that is both agreeable and wholesome. Tartaric acid is also employed medicinally—as in seidlitz powder, and industrially in calico printing, etc.

TASTE. The sense of taste varies far more widely than is generally supposed. The delicate and critical judgment of the wine or tea sampler is not merely a matter of education—primary requirements are a native possession of particularly sensitive "taste-buds" in the mouth and finely attuned olfactory nerves in the nose—both of these qualifications being essential to correct appraisal of many of the more delicate flavors. When tasting wines or teas, the expert does not drink the liquor—instead, he passes it quickly and thoroughly around his mouth so that it may strike every part of its lining membrane, and then as quickly spits it out. Bad health, or any derangement, temporary or otherwise, of the stomach or other organs which come into connection with the nose or mouth, limits the power of accurate taste. Cigar samplers, after tasting so many brands that their sense of taste is dulled, resort to a free use of strong coffee, which quickly refreshes it.

TAUTOG, another title, from the Indian word *taut,* for the BLACKFISH (which see).

TEA. The first discovery of the virtue of the beverage obtained by infusing the tea-leaf in water is hidden in the obscurity of ancient history. One Chinese tradition gives the credit to some Buddhist priests who steeped the leaves of a local shrub in the brackish water near their temple in order to disguise its unpleasant flavor. The experiment was so successful that they spread the news among their neighbors and subsequently engaged in extensive cultivation of the shrub—the now famous tea-plant.

Another record attributes its discovery about 2737 B.C. to Chin-nung, a celebrated scholar and philosopher, to whom nearly all agricultural and medical knowledge is traced in China. In replenishing a fire made of the branches of the tea-plant, some of the leaves fell into the vessel in which he was boiling water for his evening meal. The consumption of the beverage thus formed—the first "pot of tea"—proved so exhilarating in effect that he formed the habit of so using the leaves. Later, he imparted to others the knowledge thus accidentally gained, and in a short time it became the common property of the empire.

A third account tells that long before its beverage merits were discovered it was used first as medicine, and later as a vegetable or the main ingredient of a sweet stew—the leaves crushed and made into a cake, then boiled with rice and water-chestnuts and condiments.

China is generally acknowledged as the birthplace of the tea industry. Some writers argue that the honor belongs to India or Japan, but other authorities name the thirteenth century as seeing the first use of the leaf in the latter country.

The result, to whomsoever the credit, has proved prodigious. Except only water, the infusion of the tea-leaf is consumed by more people and in greater total quantity than any other beverage!

Tea was brought to Europe early in the sixteenth century, the Dutch East India Company introducing it into Holland. The first authenticated mention of it in England is in the year 1657—at which time it was considered a very rare luxury. It was known as early as 1680 in the American colonies, selling at from five dollars to six dollars a pound for the cheapest qualities. Its use was for many years widely condemned by writers and preachers who attributed to it numerous qualities inimical to health, morals, and the public order, but that attitude was long ago relegated to oblivion. Its title comes from *té*, the Chinese name for it in Amoy dialect. In other parts of China it is known as *ta, cha, dzo,* etc.

The tea-shrub is an evergreen somewhat similar in appearance to the camellia, to which it is botanically related. The Assam and kindred hybridized types of *Thea viridis,* cultivated in India, Ceylon, and Java, grow in their wild state to a height of fifteen to thirty feet, with numerous branches and a wealth of lance-like leaves which often attain a length of six to nine inches. The typical Chinese variety, *T. bohea,* and its numerous crosses are more dwarf in habit and of smaller leaf. The rather large, white, fragrant flowers grow singly, or two together, in the axils of the leaves. Under cultivation, the shrubs are not allowed to exceed three or four feet in height, and flowering is permitted only for seed purposes. The seed is round and about the size of a large hazelnut.

The plant, raised from seed in the nurseries, is set out in the fields, or "gardens," when from six to twelve inches high. It bears its first crop when about four years old—according to locality, soil, and other circumstances. A year or more before the crop is expected it is cut down to a height of a foot or less. It is again cut down to about twenty-four inches three months before gathering—the object being to make the bush spread and to stimulate the fullest possible growth of the "flushes," or young shoots, which furnish the tender, succulent new leaves desired. After this operation it is "picked" regularly for about two years (the bushes putting forth new flushes at frequent intervals), after which it is, by modern practise, again pruned back to allow it to rest. With proper care and under favorable conditions, its bearing life exceeds half a century.

The picking is generally delegated to women and children. Each has a basket strung by a cord over the head or attached to the waist in such a manner as to leave both hands free. Only the new shoots are gathered, and care is taken to avoid damaging the leaf-bud in the axil below the leaves taken, for that in its turn soon develops into a new flush. The whole flush may be taken or only the choicer upper part, according both to the size of the shoot and the minimum-grade leaf desired.

On Indian and Ceylonese plantations which produce only teas of good quality, the pickers take only the leaf-bud and the two smallest leaves—frequently only the leaf-bud and one (the smallest) leaf. Even with these limitations there is considerable variance in the size of the leaves gathered, because of the

A Ceylonese tea-picker

difference in their development no matter how frequent the picking. In China, a larger proportion of leaves—or the entire shoot—is taken. As already noted, however, the China leaves are smaller than those of the India types.

The young leaves of all varieties are very similar in appearance when fresh gathered. The larger leaves differ considerably in general proportions—always retaining, however, the characteristic construction which renders it easy to detect the addition of leaves from other plants.

The quality of the tea-leaf before preparation depends on (1) the locality—even the poorest product of an upland garden is often choicer than the best of a low-lying garden; (2) soil composition—the minerals contained—for this plays an important part in determining flavor; (3) the weather; (4) the judgment exercised in the time of plucking; and (5) the selection of the leaves—by including some of the older leaves, the crop may be greatly increased, but the grade is correspondingly lowered.

The weather exerts a great influence. When the rain falls equably and a bright sun appears after heavy showers, the plants become rich with new shoots, and the leaves bright green, elastic in texture, and rich in flavor. When too much rain falls at one time, shoots and leaves become hardened and less flexible. If there is too little moisture, they are stunted and sapless.

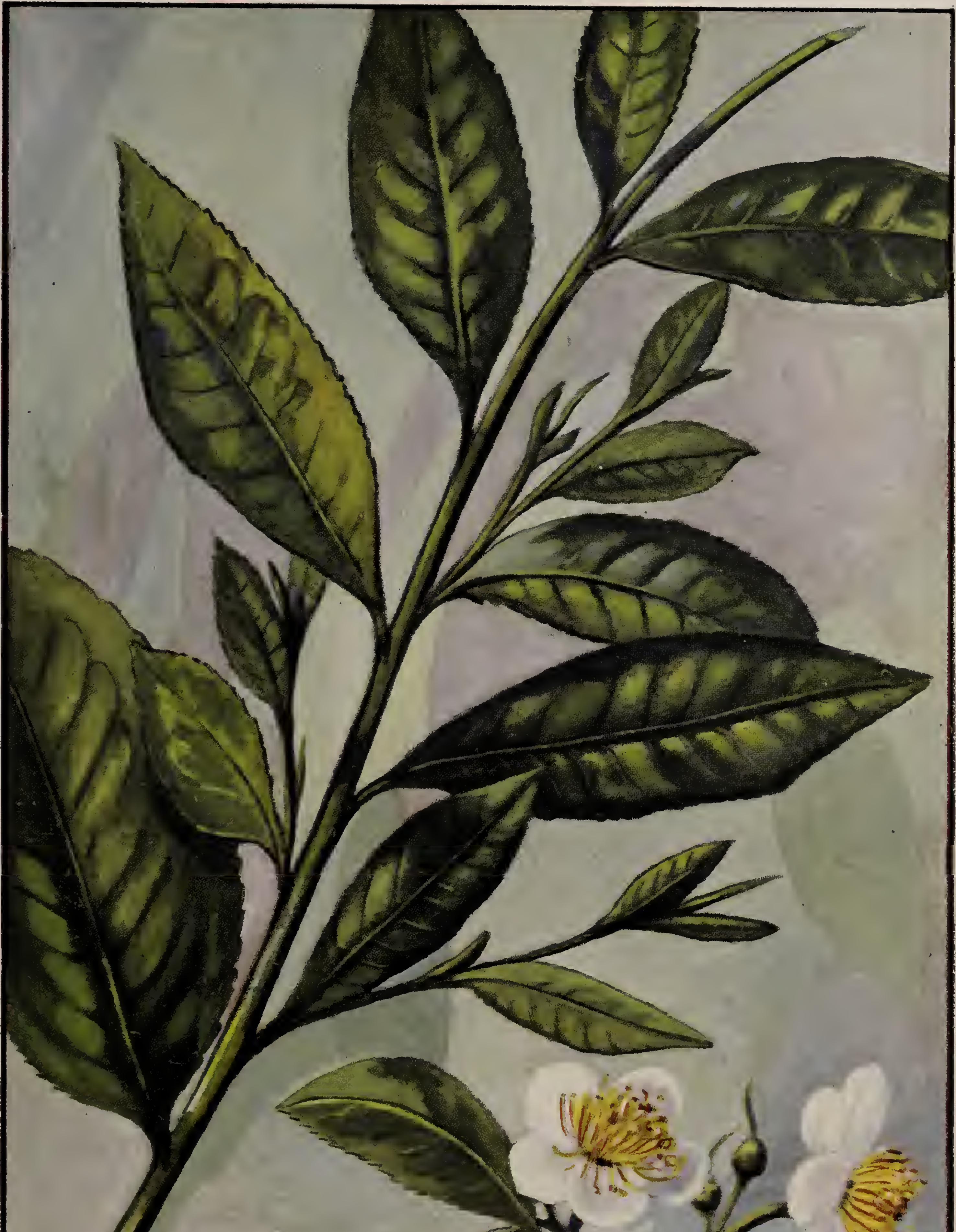
In Ceylon, where there is no winter, the picking takes place every eight or ten days all the year round. In China and Japan there are four principal harvest periods. The earliest buddings—pale green and very delicate—are gathered in the beginning of April and are termed ''first picking.'' In China, these, as a rule, realize high prices and are consumed chiefly by the wealthy classes of China and Russia, very little reaching other markets. The first general gathering commences in May, and it is from this collection that we receive the finest China tea of commerce—known to the trade as ''first crop tea.'' Then follows a later picking, known as ''second crop tea,'' and again a third and fourth, the quality becoming lower in quality as the season proceeds, a large percentage of the late harvests being consumed locally and made into ''brick tea.''

Both ''green'' and ''black'' tea can be made from the same shrubs, the main difference being that Black tea is fermented—or (more accurately) oxidized—and Green is not.

For either kind, the freshly picked shoots undergo three main processes—withering, rolling, and firing. For black tea, a fourth step, ''fermenting,'' follows rolling.

Withering is (by Ceylonese and Indian practise) accomplished by spreading the shoots on shelves of bamboo or wire or jute-hessian—or on the floor—the object being to render the leaves soft and flaccid for ''twisting'' in the rollers. For black tea, simple air-withering is practised (unless the weather is especially damp) in order to permit the development of the tea enzyme, or ferment. For green tea, in order to avoid its development, either dry artificial heat or steaming is used to expedite withering, irrespective of weather conditions.

The shoots are next put through rollers which break the cells and give the ''twist'' which results in the characteristic form of the prepared leaf. The leaf as it emerges from this process is a mess of mashy lumps—the ''roll'' in technical terminology. This is put through a ''roll-breaker,'' which breaks up the lumps and sifts the detached leaves and young stems through wire mesh into cloths placed below to receive them.



TEA—Showing the new shoots, or "flushes," with leaves ready for plucking

The blossoms

For green tea, the product from the roll-breaker immediately undergoes ''firing.'' For black tea, it is spread out in layers on wooden frames (or on specially laid floors of cement or tile) in a cool house and allowed to ''ferment'' until the leaves attain a bright copper tint—the color which they should have in the teapot after infusion. The exact degree of fermentation is determined by the smell and appearance of the leaf—points that require experienced judgment, for too little means rawness and bitterness, and any excess destroys much or all of the flavor. Then generally follows a second short rolling to twist any open leaves.

Next comes the ''firing''—the tea going to the tea-drier—to be spread thinly on wire trays through which passes a current of air heated to 190°-240° Fahr., or (as in more modernly equipped plants) on broad, slowly moving, perforated metal bands which receive it moist at the top of the drying-chamber and discharge it dry and brittle at the bottom.

The tea now requires only sorting and packing. It has taken about 4,200 pounds of the green shoots to make 1000 pounds of the marketable product.

After cooling over night, the tea goes to the sifter, a machine with a series of sloping sieves, one above the other.

The sieves are shaken, by engine or motor power, at a very high speed, and the tea falls through from one sifter to another, each sieve retaining a different size and emptying itself into a chest through a spout at the low end.

The leaves and stems retained by the top sifter—i.e., the largest—form the cheap grades of tea—the ''Souchong'' of Ceylon, India, and Java black teas. Each size smaller is correspondingly choicer—excepting the last, known as ''Dust,'' or ''Dust and Siftings,'' and sold at low prices.

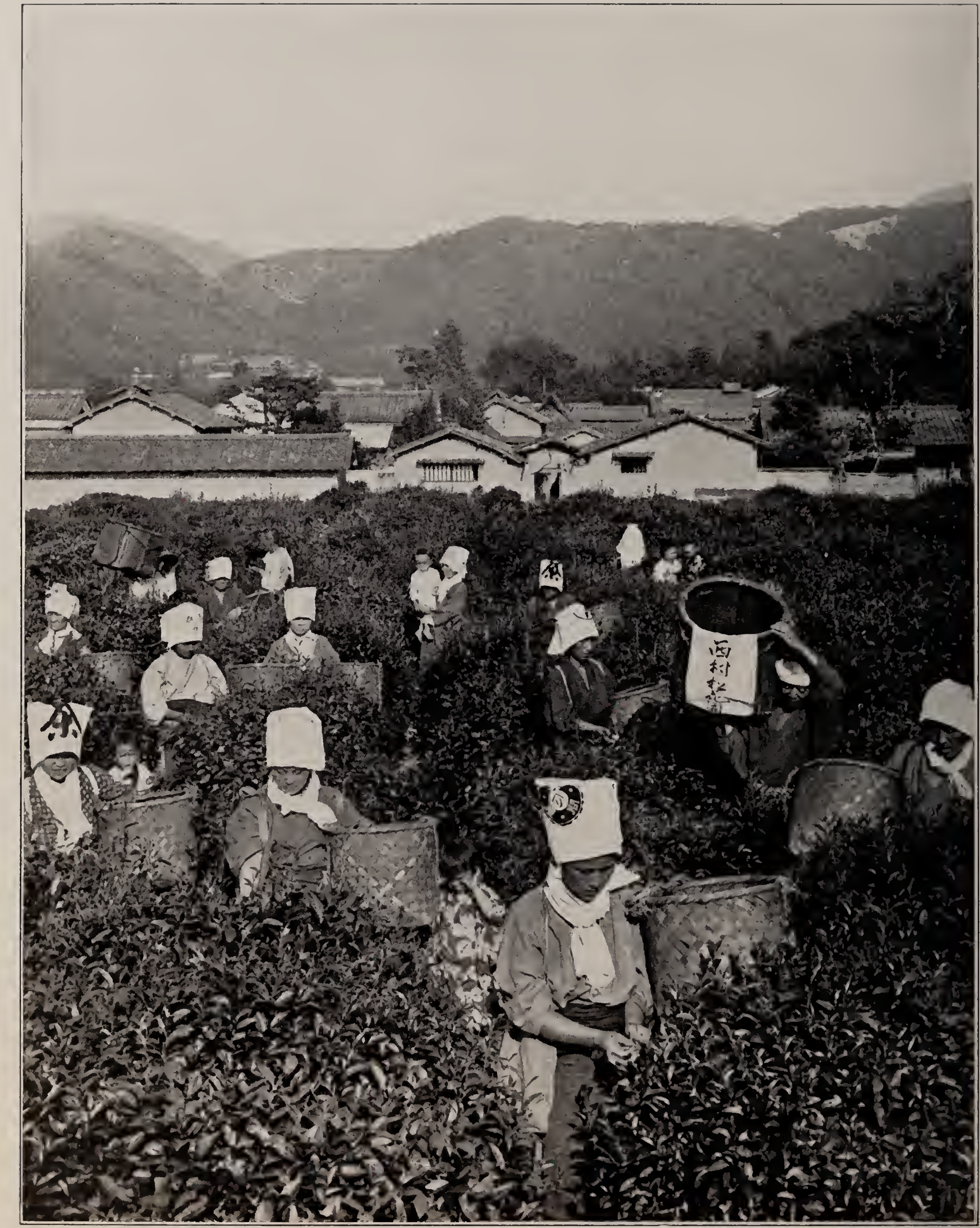
The second sieve retains (in black teas) Pekoe or Pekoe-Souchong, according to the crop or estate policy; the third, Pekoe or Orange Pekoe; and the fourth, Orange Pekoe, or ''Flowery Orange Pekoe'' (so called because of its cup quality). The term ''pekoe'' refers to the downy appearance of the under-sides and ends of the young leaves, and ''orange'' to the color of the ends of the still newer leaves and to the ''tips,'' or leaf-buds, which look like little chips of wood and are also commercially classed as ''golden tips.'' The tips give the tea a good appearance and greatly enhance its aroma and flavor.

''Broken Orange Pekoe,'' ''Broken Pekoe,'' etc., are the smaller particles separated from their respective grades by a second sifting. They are fully equal in quality to the less broken teas of the same grades—experts indeed maintain that the smaller the leaf particles, the better the infusion—and Broken Orange Pekoe is often decidedly superior because of the larger percentage of tips included.

The above are true trade names, but in distribution to the consumer the title ''Orange Pekoe'' has come to signify nothing more specific than a good grade of Ceylon, or Ceylon and India, black tea.

In green teas the sorting and classification vary with national custom and are considered later in this article in specific references to China and Japan teas. Green teas vary in tint from yellow to a greenish brown. The grey-green of those formerly sold here was due to the addition of a minute quantity of coloring powder during the firing. Importation of colored teas of any kind is now prohibited.

The various grades—after, frequently, a supplementary picking over by hand—are day by day stored in their separate bins, until there is enough to make what is technically known as a ''break''—5,000 pounds and upward.



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Picking tea on a great plantation near Osaka, Japan

The next operation is "bulking." The whole contents of the bins of one grade are thrown together and agitated by scoops or shovels until so thoroughly mixed that each pound will be the same as another in flavor and appearance. Finally comes a second firing (to insure thorough dryness) and the filling of the tea, while still warm, into lead-lined chests.

Much of the tea dust which accumulates in manufacture and as the result of transportation and commercial handling is of fine quality. If protected from contamination and properly cared for in other respects, it makes good liquor. There is a strong prejudice against its use in America—partly, perhaps, because it lends itself so readily to adulteration—but it commands a ready sale in England. Used in the correct proportions, it improves the blend, adding to its strength and pungency. In tea-growing countries it is a common practise to pulverize the leaves by rubbing in the hand, dropping the powder into the drinking cups, there to be steeped instead of in a teapot.

The foregoing description gives a general idea of the methods now employed in the preparation of India and Ceylon teas. The same principles are followed for China and Japan teas, the chief difference in execution being that in China machinery plays a comparatively unimportant part—much of the firing is done in pots, bowls, or baskets over charcoal fires, and the twisting by placing the leaves in bags and rolling them with the hands. The long-drawn-out intermittent firing of Chinese native practise has the advantage of giving the tea longer-keeping quality.

In China there is a strong contrast between the end of the last harvest and the slack time which follows it. In an interesting article, published prior to the introduction of some modern innovations, the Foochow Herald said: "A tea-packing house at this season presents a very different scene from that of two months before. Then, one found long lines of fifteen-catty boxes waiting to be soldered up. Now, none. Next, one found fat bags stacked up eight or ten feet high, bursting with tea that escaped here and there through holes temporarily stopped with bamboo leaves; the bottom of the bags mostly stained from contact with wet flights of mountain stairs upon which the exhausted coolies had set them down on the passage. Now, one finds but empty chests, hundreds in number.

"Farther on, one came to the dozen long rows of sifters facing each other, forty in a row, the mesh of some taking a pencil, that of others refusing a pencil point—sifting tea-leaf rough and bold that, after a persuasive grasp or two of the hand, broke and consented, after a few shakes of the sieve, to be stripped of some of the sappy leaf-edges and leaf-ends and to appear below, the even and uniform leaf which the tea-drinker insists he must have (*plus* the dust due to the persuading). The transformation in a rough leaf in passing the meshes of a coarse sieve, with a gentle crush from the sifter's hands, enhances a rough bold tea very considerably in value.

"In place of the rows of men then seen tilting and jerking their sieves in a monotony only broken by the Cantonese taskmasters' roll-call twice a day before the general meal of fish and rice, there is now to be seen only the bare floor of hardened earth, piles of empty benches stacked in a corner, and the sieves of the twelve different sizes used, each in its division in the three-story stands.

"The dozen or score of fanning mills are still, too. The tea-leaf separated in these fanning mills has been sold, and the mills will rest until another May shall bring courage back to the pale and dispirited native teamen.

"There are stacked in this huge go-down a few hundred packages of the native maker's brick-tea wrapped in plaited bamboo strips, bound in half bamboo and triply rattaned. Aside here, its manufacture still continues. The Chinese upper millstone is being turned upon the nether by a Chinaman who is grinding the tea seeds left by a fanning mill, and in these sychee-boxes sharp spades are falling upon the stems, chopping them fine enough to go into the stemmy, dusty mixture to which the seed-dust gives the strength, while the chopped stems vouch for its being tea.

"In the firing house are the four Chinese rice kettles, two feet across the mouth, which when in use—set obliquely upon edge—turn the tea back in a shower over the hand of the stirrer, a wood fire being kept up in the brick-work underneath.

"Fire holes also, scores in number, follow in rows the walls of the firing house, in each an iron charcoal pan. Over each of these fires is a huge hour-glass-shaped basket-hood or muffler that shuts in all the heat of each fire to but one outlet—that through the tea sieve which chokes the throat of each basket. In these baskets is dried the tea that comes in from the hills, wet or flat from constant down-pours and from the first fermentation of the leaf.

"Here, too, on the floor above, the benches are empty where girls and women came to sort the rough stems from the leaf, getting half a cent for removing them from the two catties of tea apportioned to them in bamboo-woven trays.

"Our round finished at the shed where, out of long sheets of lead, Chinese lads were glibly making lead cases by moulding them, hatter-like, upon a box, and then running the soldering iron along the edges. Other Chinamen, in their natal costume, were washing off the dust and sweat of the day at a huge four-hogshead vat of hot water.

"The box factory is elsewhere. We enter on our homeward way. It is in another old disused tea hong—occupied by foreigners in the days when money was made—tumbled-down now and abandoned to Chinese. Inside, a few Chinese youths, eating a dollar's worth of rice per month, were rapidly gluing and dove-tailing together, by rough wholesale strokes, boxes by the score. Few nails are used, for these are hand-made and cannot be afforded. What a bungling 'mending' the merchant pays for when these frail cases reach the land of rough usage and coarse nails!

"There you saw a bit of thin teakwood; there a bit of paper gaudily daubed with cardinal colors—a stroke or two—side marries end, the gaudy paper cover hides all joints, and the catty-boxes, gay with bird, butterfly, dragon and phoenix, are *en route* to be stared at in a far-off grocer's window.

"Every season sees vast quantities of tea pass through the sieves in hundreds of packing houses, some in hamlets in the hills, some, as in Foochow, in cities ten to fifty miles from the hills, much of it brought in by women who have carried it up and down the mountain pathways, twenty-five miles a day, regardless of their bent backs, their only food often a double handful of salt in their girdles to bite at before they drank.

"Probably all the tea leaving Foochow has been lifted up and down as much as if it had been carried up one side of the great pyramid and down the other a score of times. Boatmen at river marts have fought pitched battles for it, their livelihood depending upon its transport, and plenty of other men have been ready to fight for the privilege of carrying it—women, also, under their loads, behind their new husbands."

This picture was painted of the tea manufacture of an earlier generation, but much of the same story is repeated annually in the China of to-day.

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Coolies unloading tea at Hankow, the great tea market of interior China

Consumption and Principal Varieties

The United States per capita consumption of tea has increased greatly during the past few years, but it is still much below that of Australia, Great Britain, Ireland, Canada, and other English-speaking countries.

More striking than the increase in consumption is the change in national taste. Green tea—twenty or thirty years ago the standard kind here—has to a considerable extent given place to the taste for black tea, the latter now predominating in imports.

Equally important commercially has been the growth in favor of Ceylon and India black tea and Japan green tea at the expense of China teas. The bulk of our black tea now comes from Ceylon and India, and of our green tea from Japan. Java and China are the chief supplementary sources of black tea, and China of green tea. Imports from China have fallen from 53,157,332 pounds in 1903 to from ten to fifteen million pounds in recent years.

When to this loss of trade from the United States is coupled a still greater diminution in the English market—which, after China and Japan, is the world's greatest tea consumer—the natural assumption is that China must feel the change of conditions very severely. Instead, the Chinese merchants are the only material losers. The greater part of the China tea sold was, and is, produced by small planters who have never been able to secure an adequate price for their leaves, so when the demand fell off many of them planted more beans and yams or sweet-potatoes and were just as well contented.

People who like a very rich, flavory, full-colored tea, generally prefer Ceylon and India black teas. These teas are also more apt to win the favor of the coffee-drinker, or a "new" tea-drinker, than are the general run of China teas. Among confirmed tea habitués there are many who choose the lighter infusions of high-class blends of China teas.

The China teas offer the widest range in qualities—they vary from very choice lots which because of minute selection are too expensive to make importation profitable, to large quantities so poor and so badly manipulated that their importation is not permitted.

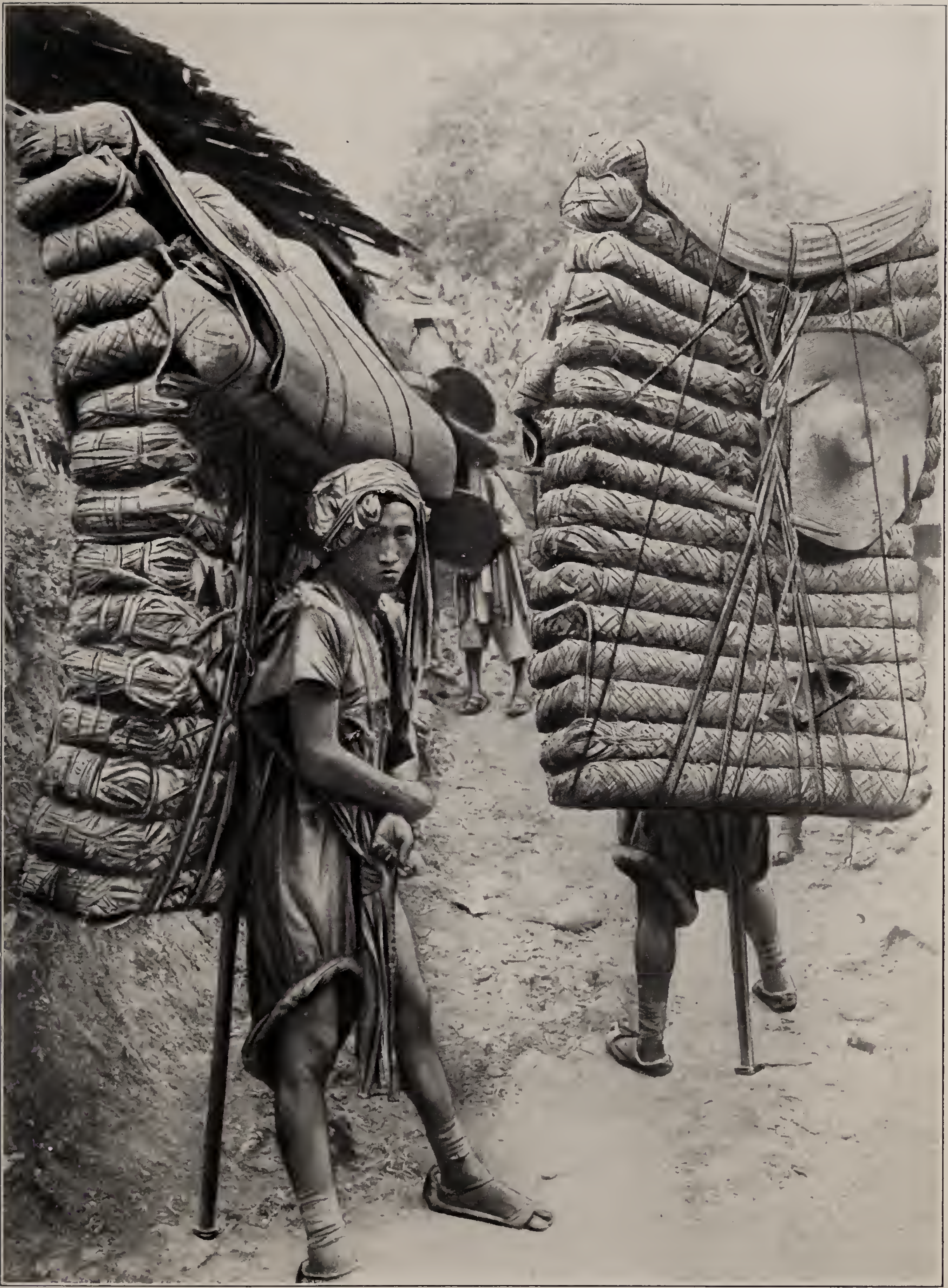
Most of the tea retailed consists of several kinds and grades blended to produce the most pleasing results—a small quantity of an expensive, particularly fragrant tea being added to a plainer, lower quality to improve its flavor; an over-strong choice tea being toned down by a lighter kind—and so on indefinitely.

The blending of tea is the highest branch of the tea-merchant's calling. For the retailer without good experience to attempt it, is rather risky. To produce an especially pleasing blend is not an easy matter, and to repeat it is still more difficult—and it is very undesirable to establish a demand for a particular flavor if unable to continue supplying it. The art is fascinating—and profitable if successfully conducted —but first experiments should be on a very small and conscientiously recorded scale. and they should be accompanied by a close study of the literature of the business, for there are many points to be considered in addition to those of flavor, aroma, and cost—the comparative keeping qualities of different kinds, for example.

"English breakfast tea," an American trade-term unknown in England, is generally China black tea.

"Mixed tea" is a blend of black and green teas.

Oolong is a semi-fermented tea. It is treated separately, following.



CHINESE COOLIES ON THEIR WAY TO TACHIEN-LU, WITH BRICK-TEA FOR TIBET
The load of the coolie on the left weighs 298 lbs., that of the man on the right 317 lbs.

CEYLON AND INDIA TEAS

The size grades of Ceylon and India teas and the popular use of the title "Orange Pekoe" are noted on page 515. They are also largely retailed here as first quality, second quality, etc.

India teas are not, generally, as sweet or as highly flavored as Ceylon, and some of them are too heavy, dark, and pungent for American tastes, but others are of surpassingly fine quality—particularly the best offerings of the famous Darjeeling district. Next after Darjeeling come those of Assam.

JAVA AND SUMATRA TEAS

Java and Sumatra teas are similar in style to Ceylon and follow the Ceylon and India market divisions. The importation of Sumatra is comparatively small.

CHINA BLACK TEAS

The bulk of the China black tea imported into the United States is known as "Congou." The principal commercial classifications are into choice-new crop, choicest, choice, finest, fine, superior, good, fair, common; by numbers, 1, 2, 3, etc.; as Pekoe, Souchong, etc.

The fancy teas include Flowery Pekoe — small, evenly-folded, olive-colored; Orange Pekoe—small black leaves with yellowish ends; and Pekoe—small, with whitish tips. They are frequently perfumed—in most cases after manufacture—by contact with the flowers of other plants, usually with chulan blossoms, which have an odor similar to jasmine.

It is an easy matter to scent your own (dry) tea, by placing some in a tightly covered jar with a few lozenges or drops of any flavor you desire—as lemon, orange, vanilla, or wintergreen—and allowing it to remain covered for a few hours without disturbing it. The infusion will carry a distinctive flavor and aroma.

CHINA GREEN TEAS

The best China green tea coming here is the Moyune of Ngan-hui. Others of importance are Hoochow and Pingsuey. Their classification by quality is similar to that of black tea. The chief size and style divisions are into Gunpowder, Imperial, Young Hyson, and Hyson.

Gunpowder consists of the youngest and smallest leaves, and is roundish in appearance. The smallest and most curled are the choicest.

Imperial is like Gunpowder, but is larger.

Young Hyson is a still longer leaf, well-twisted in the best grades.

Hyson is larger than Young Hyson and is more loosely twisted.

The average consumer regards Gunpowder, Hyson, etc., as distinct varieties of green tea. Correctly speaking, they are the titles for particular sizes and shapes only—you may have a Gunpowder size of any crop or section.

JAPAN TEAS

The best Japan teas (almost exclusively green, or unfermented) show a medium-sized or small leaf and give a bright, clear, greenish liquor with a fragrance suggestive of new-mown hay. These qualities, with a mild, pleasing flavor, have won a considerable following here.

On importation they are classed as follows:

Basket-fired—the leaf a dark olive-green, well twisted—fired in bamboo baskets over charcoal fires, and (in the best qualities) manipulated with great care in order to preserve the full length of the leaf. Because of higher labor cost, the production has greatly lessened in recent years.

Pan-fired—fired in large iron pans, and commonly a good deal greener than the basket-fired.

Natural leaf—generally pan-fired, but not as thoroughly dried as the preceding and often including a good many coarse leaves.

Nibs—irregularly twisted, ''lumpy'' leaf, sifted from the higher grades.

Fannings, Siftings, and Dust are respectively the different sizes sifted from all styles and qualities.

For commercial purposes, Japan teas are graded as extra choicest, choicest, choice, fine, good, medium, and common, and are marketed both as Japan teas No. 1, No. 2, No. 3, etc., and by conventional titles for size and style.

OOLONG TEA

Oolongs are frequently grouped among black teas but they constitute a separate class for they are not as thoroughly fermented before firing as the general run of black teas and therefore hold part of the flavor and a little of the color of green tea. There are two chief kinds—Formosa and China (the latter principally from Foochow). First in reputation and quality are those of Formosa, the flavor and bouquet of the choice grades setting them apart from all other oolongs commercially obtainable. They are highly valued for sale separate and for blending.

BRICK-TEA

Brick-tea consists of leaf and dust shaped by pressure into cakes, divided by indented lines into small, easily separated squares, which expand when put into boiling water. It is manufactured in large quantities in China, both for local consumption in various parts and for export to Tibet, Siberia, and elsewhere, serving as a standard article of barter for numerous commodities produced in those countries. It is generally transported, often for great distances, on the backs of the hard-working native ''coolies,'' or porters. The illustration on page 521 shows the peculiar method of arranging a ''pack,'' the long bundles of bricks, wrapped in matting, being piled sail-fashion on a cane frame fastened on the porter's back. For months at a time there is an almost continuous procession of these coolies along the roads to Tachien-lu, a little frontier city cramped within mountains, which serves as the general mart for Chinese and Tibetan trades, the latter bringing musk and gold-dust to exchange for the tea.

On this continent the bricks enjoy a measure of popularity in Alaska.

''Tile-tea'' is a similar product—a kind of flat brick-tea made in China, exported by way of Keachti and variously distributed throughout Siberia by Armenians and Tartars.

These teas are largely consumed in central Asia in soup and vegetable form—compounded with milk, butter, salt, herbs, balls of dough, etc.

TEA TERMS

The titles originally applied exclusively to the China product have extended to nearly all teas, irrespective of their place of growth or manufacture. A majority are corruptions of local Chinese terms, as: ''Oolong,'' from *ou-loung,* ''black dragon,'' referring to the black leaves mixed with the greenish-yellow; ''Hyson,'' from *hetsien,* ''spring time,'' the season of the first and second pickings; ''Young Hyson,'' from *yü-tsien,* ''before the rains,'' or ''young spring time''; ''Pekoe,'' from *pak-ho,* ''white hair''—referring to the down on the young leaves; ''Congou,'' from *kung-fu,* ''labor.''

Among the exceptions are two English titles — ''Gunpowder,'' which was suggested by its small, round form (it is called *choo-cha,* or ''pearl tea,'' by the Chinese), and ''Imperial,'' which derived its name from its similarity to the tea which used to be specially cultivated and prepared for the Chinese imperial household, and the wealthiest officials and citizens.

Retailing Tea and Its Storage

The demand for tea has grown to such proportions that retailers find it profitable to give it special attention. Only good, dependable blends should be stocked, and when a satisfactory line is established and selling well, it is usually the wisest policy to avoid making any changes, for the average tea-drinker becomes used to one particular brand or flavor and prefers it to anything new.

In purchasing in bulk, the first and most important test is that of flavor when brewed. Next comes the appearance of the leaf in bulk and individually. Generally speaking, the best qualities are small and more or less tightly curled—with variations as noted in the descriptions of different kinds.

For the flavor test, the requirements are a scale of the style ordinarily used by druggists and a few small china cups of equal size. The trade rule for sampling is to place in a cup as much dry tea as will balance an unworn silver United States half-dime, then pour boiling water over, and taste when sufficiently cool. A piece of metal of half the weight of an unworn United States dime may take the place of the half-dime. It would be useless to give detailed instructions by which to discriminate, for only experience and constant application—with a naturally keen sense of taste as an initial (and the most important) qualification—will give real proficiency.

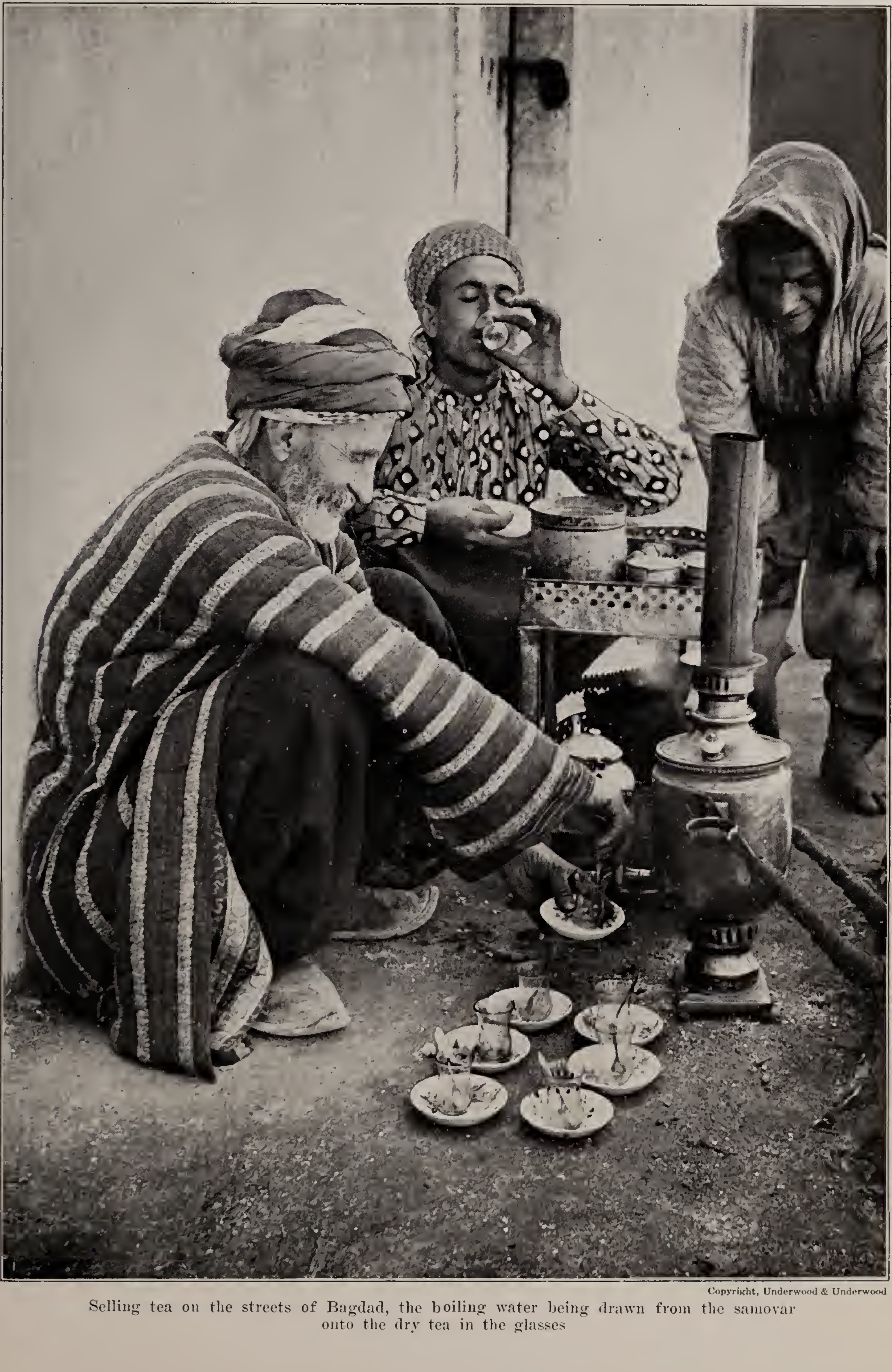
Tea, whether in bulk or package, should always be kept in a moderately cool, dry place, away from all other articles of distinctive smell. Not only cheese and similar strong-smelling articles, but even the aroma of oranges and lemons will affect it. Dampness will spoil it utterly by starting secondary fermentation, and exposure to the air, if in bulk, will cause it to lose flavor, strength, and aroma.

Tea naturally keeps fresh longest in tight-fitting canisters and in sealed tin or lead packages, but it deteriorates with age no matter how packed. A retailer who is jealous of his reputation should sell no tea that is more than six to nine months old.

Tea Analysis and Its Use as a Beverage

The most important components of the tea-leaf of commerce are (1) caffein (or ''thein''), the chief stimulating principle, usually placed by analysis at from 2% to 3 1/3%; (2) its oil and resinous ingredients, which furnish the flavor and aroma of the liquid, and thus chiefly determine its market value; and (3) tannin and gummy substances, which give it ''body'' and strength.

Analysis shows also a large percentage—40% to 60%—of protein, cellulose, fiber, etc.—but nearly all of this is found in the residue, the ''tea-leaves,'' left after making the liquid. The greater part of the tannin, which averages from 12% to 18%,



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Selling tea on the streets of Bagdad, the boiling water being drawn from the samovar onto the dry tea in the glasses up to 27% or more in some green tea, meets the same fate if the tea is fresh made. Green tea has commonly a little more soluble tannin than black tea.

To enjoy the best qualities of any variety—and also the best physiological effect—tea drinkers should bear in mind that, (1) the water used must be both fresh and boiling; (2) the pot in which the infusion is made must be kept hot, but not boiling, for from three to five minutes after pouring in; and (3) the tea must not stand longer than three to five minutes before drinking unless the tea-leaves have been removed at the expiration of that time.

If the water used is not fresh—i.e., if it has been standing long or been previously boiled—the tea will be flat in flavor. If it is not actually boiling at the time of pouring on the leaves, the result will be a rough, raw taste. An earthen or china pot is better than a metal one. A pot warmed before putting in the dry leaves is better than a cold one. The addition of milk and sugar—either or both—or of lemon—or of nothing at all, must be relegated to the decision of each individual.

The Russian samovar method, with the water held always boiling and always ready over a fire, meets the requirement of fresh brewing, but not that of freshly boiled water.

The fresh-brewed liquid (after a three to five minutes' infusion) is essentially, if of a good quality tea, a simple infusion of caffein-tannate. The tannin, in combination, overcomes the bitter flavor that free caffein would give; and the caffein nullifies the astringency of the tannin. A tea which on simple brewing yields an excess of either caffein or tannin, especially the latter, is a tea of poor quality. The ''taste'' test of tea thus assumes physiological importance—for, to a considerable extent, it guards against the consumption of tea that by its excess of caffein or tannin might prove detrimental to habitual consumers. The test, generally speaking, reaches its highest accuracy in the most expensive qualities, as a slight excess of caffein or tannin that might be disguised by the coarser flavor of a low grade would be at once apparent in the more delicate infusion of a choice blend. Hence, the more expensive teas, in addition to the attraction of their ''cup quality,'' are also physiologically the most desirable. But the best of teas can be easily spoiled by permitting the liquid to stand on the leaves for longer than five or (at the very most) seven minutes. The caffein, whatever its percentage, will nearly all have been extracted within the first four or five minutes, but with every additional second the tannin percentage is increased until not only is the flavor entirely spoiled but the beverage becomes distinctly detrimental to digestion. If the tea-leaves be removed after the five minutes, or the infusion be poured off into another earthen or china vessel, a considerable element of waste is avoided, for (if the tea be then kept covered to avoid the loss of aroma) it is both wholesome and good in flavor for later consumption either hot or cold. When a ''tea-ball'' of any kind is used, it should be agitated once or twice before removing, or much of the strength of the leaf will be wasted.

The quantity of tea required to make a good infusion depends both on individual tastes and on different kinds and blends.

The result is also frequently affected by the water supply—the water in some localities makes much better tea than is possible in others. Some authorities assert that the quality of the water should be considered as a factor when making a blend—that water containing an excessive amount of lime or other mineral matter requires the stronger, coarser varieties of leaf, and that the delicate grades yield their fine flavor and aroma only when the water is ''soft.'' This is disputed by other experts, who assert that the best tea is the best everywhere—though it will not of course display its qualities to the fullest advantage under unfavorable conditions.

In making iced-tea, prepare the beverage just as carefully as for tea to be served hot, and in just the same way, except that if any considerable quantity of ice is to be served in the glass with it, it is well to use from one-quarter to one-third more of the leaf.

To the average individual, tea of good quality, properly infused, is a harmless, mildly stimulating beverage, pleasing both to the palate and in the system's response to it. It is frequently acceptable to the digestion when coffee proves objectionable (and sometimes vice versa). It is not desirable as a beverage of frequent or heavy consumption by "nervous" people nor for those with weak digestions.

TERRAPIN. The diamond-back, which is the kind always inferred when terrapin is mentioned, is the female of any one of several species of *Malaclemys,* a genus of small salt-marsh tortoises, named for the diamond-shape markings of their shells. Within the last half century they have developed from almost a waste product—an article fed to slaves and apprentices before the Civil War—into one of the costliest of food delicacies. The most highly valued species—the Chesapeake and the Louisiana—now bring (at wholesale) from $2.50 to $8 apiece, the figures steadily rising with the diminishing supply.

The terrapin from the mouth of the Chesapeake River was formerly considered as a separate (and the choicest) kind, but the same species (carrying the title of "Chesapeake") extends south to the North Carolina sounds and as far north as Buzzard's Bay. Some of the finest specimens are caught along the New York and southern New England coast—those from Long Island commanding the highest prices of all in the New York market. And the Louisiana species is considered by many judges fully as choice as the Chesapeake.

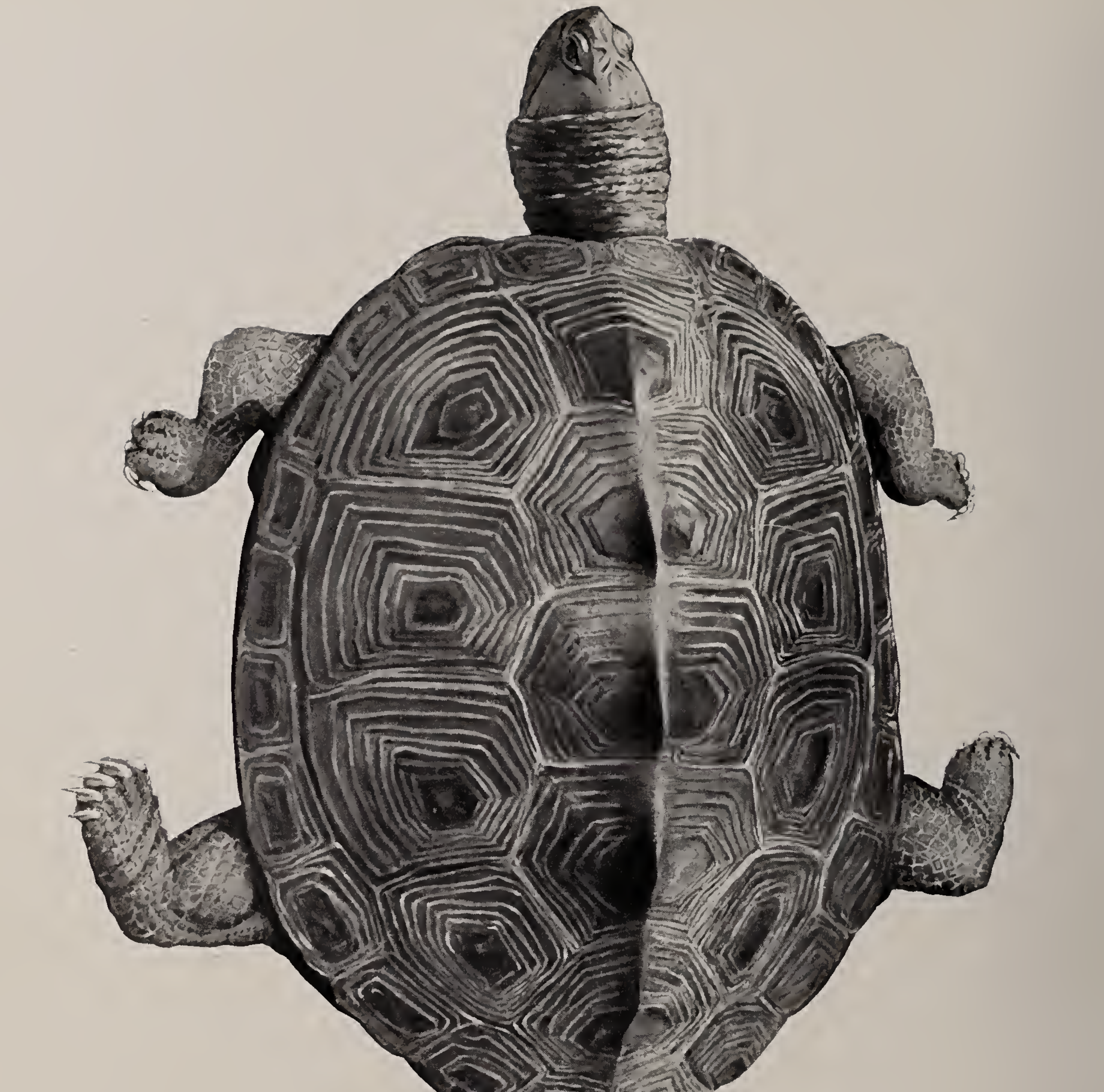
It is only the female, or "cow," terrapin which is sought. The "bull" has little value—it is used only for soups. The choicest are those styled "full cows"—i.e., those containing eggs. "Counts" are terrapins of six inches or more in length—measuring the under-shell; "half-counts" are from five to six inches; those under five inches are "shorts." The range of size is from two to nine inches, each inch of length representing commonly a little more than a year of growth. After six inches, the growth is very slow. Those of six to seven inches bring the highest prices—larger specimens rest under the suspicion of being unduly old.

The Texas, Carolina, and Florida species are also marketed. They lack, though—or at all events the two latter do—the true delicacy of flesh and are consequently much lower in price—particularly the Florida because of its different markings.

The "slider," or "red-bellied terrapin," often used as a substitute for the diamond-back, is a small fresh-water tortoise. It is good for soup, but over-hard and coarse for stewing. Its eggs are regarded as very choice.

A developing industry is the establishment of terrapin-farms in which the creatures are bred and raised for the market.

The diamond-back terrapin is wasted on any one save an epicure of very discriminating palate, and even on him unless it profit first by the service of a culinary adept, for the difference in flesh between the true diamond-back and many masquerading counterfeits is so slight that only the combination of high professional skill and a keen palate justifies the enormous difference in price. The flesh of both



Diamond-back terrapins

the diamond-back and various of its substitutes is alike in being highly gelatinous and in owing fame chiefly to its adaptability and quick response to skillful cooking.

THYME, a garden-herb cultivated for its fragrant tops and leaves, which are popular for seasoning. The best variety is the Lemon-scented, one of the creeping styles. Thyme for drying should be cut when just commencing to blossom.

TI-ES, a tropical fruit popular in the West Indies and freely grown in southern Florida. It is borne by a handsome evergreen tree and is generally roundish or between oval and round, about three inches in length or at its greatest diameter, and more or less orange-colored in both stem and flesh—the latter sweet, musk-scented, and dry, and looking a good deal like the yolk of a hard-boiled egg.

TILEFISH. The most important of the several members of the tilefish family is that of the North Atlantic. It is a handsomely colored, thick-meated, deep-water fish with a crested head. It reaches three feet in length and a weight of thirty pounds.

TOLU, a fragrant, pale brown balsam, or oleoresin, obtained from incisions in the thick, brown bark of a tropical South-American tree. On distillation, it furnishes benzoic acid (see Benzoate of Soda). Blended with spirits, it is sometimes used in confectionery, imparting a flavor resembling vanilla.

TOMATO, the fruit of a rapid-growing, short-lived, tender annual, native to South America—a sun-loving plant which requires long days of uninterrupted sunshine to develop the best possibilities of its fruit—its choicest flavor and highest color. It was for a long time considered unfit for food, but it is now esteemed as especially wholesome and of high vitamin merit (see Food Values), and is marketed in ever-increasing quantities and in numerous forms—fresh, canned, in catchup, etc.

The tomato was cultivated in Mexico and Peru for many centuries prior to the advent of the Spaniards. Several varieties were known in England by the end of the sixteenth century, and Gerard, the surgeon and botanist, speaks of it in his "History of Plants," having himself introduced it as an exotic. Dodoens, the Netherlands herbalist, mentions it as early as 1583 as a vegetable to be eaten with pepper, salt, and oil. Its popular acceptance was, however, slow in arriving, for it is only within the last three generations that it has become a food of general use.

The United States is the greatest per capita consumer. Next comes southern Italy, where it is used in the preparation of, or as an accompaniment to, nearly every dish. The Italians call it the "golden apple." It was also formerly known as the "love apple" in France, England, and this country.

In northern Europe the consumption is largely of the canned product. The plant is grown in England, but sparingly, as it requires hotbeds in the spring and the fruit is consequently high-priced.

Our northern states grow their own fruits in fields and gardens from June to November. The winter and spring demand is supplied both by the southern states and the West Indies and by the output of localized hothouses. The hothouse crop has increased more than 500% during the last few years.

There are many kinds of tomatoes, ranging from the fancy, generally small, varieties known by their resemblance to other fruits—as the "currant" (a distinct species), acid in flavor, and growing, currant-style, in long clusters; the "cherry" or "grape," borne in bunches; and the "pear"—to the many sizes of the ordinary tomato, reaching the maximum in the huge "beefsteaks" (which frequently weigh from two to three pounds each) and varying in color from deep red to yellow. The most generally desirable are those smooth and round, of medium size and even color, with thick walls and small seed-cavities.

The small fancy varieties are seldom grown for eating raw, except as curiosities, but they are cultivated to some extent for pickling and preserving.

Green, but firm and well grown, tomatoes, gathered just before frost, can be ripened in a dry cellar for winter use. They should be wiped dry and placed on racks, the latter preferably straw-covered. Any that show signs of decay during the ripening must be at once removed before the trouble spreads. They will not attain the full color or fine quality of the fruit ripened on the vine, but they are thoroughly wholesome.

Canned tomatoes are the most widely consumed of all canned vegetables, and this popularity is thoroughly deserved as for many culinary purposes they are more convenient than, and equally as good as, the fresh fruit. When a "tinny" flavor is noticeable, it can be avoided by adding a little sliced onion during heating, the average proportion being about half a medium-sized mild onion to the contents of a three-pound can. The quantity named is not sufficient to give an onion flavor.

One of the most interesting of the numerous kindred fruits of the same general character is that known in many parts as the "strawberry-tomato" and described under the title of GROUND-CHERRY. See also the TREE-TOMATO.

Brown Bros.

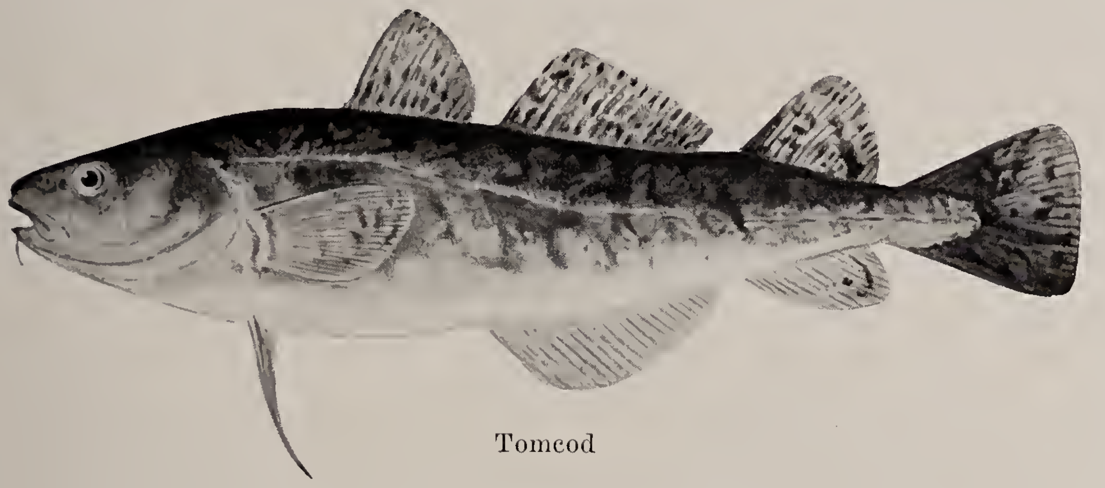
A barge-load of tomatoes entering the Delaware and Chesapeake Canal

TOMATOES

TOMATO PASTE, the pulp of ripe tomatoes, freed from skins, cores, and seeds, and concentrated by evaporation. It is an Italian specialty which has become a standard canned article. It can be serviceably employed in many ways—in making sauces and flavoring soups, broths, and other dishes; also, diluted, as a soup; and undiluted for service with spaghetti and numerous other foods.

If less concentrated it is known as "tomato puree."

TOMCOD, or Frostfish (*Microgadus tomcod*), a fish of the North Atlantic allied to, and greatly resembling, the common cod, but very small, seldom exceeding twelve inches in length. Its flesh is excellent and is much sought in some localities. It owes its colloquial title "frostfish" to its early-winter maximum abundance near the shore.


Tomcod

The California tomcod belongs to the same genus, is a similar fish, and is equally abundant and valuable.

TONGUE, one of the most popular of meat delicacies. Beef (or ox) tongue is generally understood when "tongue" is employed as an unqualified expression, but calf's, lamb's, sheep's, and pig's tongues also are freely consumed.

Full beef tongues range in weight from 3½ to six pounds and are marketed fresh, canned, smoked, and sweet pickled. In purchasing a fresh tongue, choose one which is thick and firm, with plenty of fat on the under side.

Calf's tongue is usually sold with the head.

Lamb's tongue is commonly pickled. A carefully selected canned cured lamb's tongue is rated as a delicacy.

Sheeps' tongues usually go to sausage manufacturers.

Pigs' tongues are generally canned as "luncheon tongue."

"Compressed" tongue is canned tongue subjected to pressure before or during the canning process.

TONGUES and SOUNDS, the tongues and swim-bladders of fish. See the reference under Cod.

TONKA, or Tonqua, BEAN, or COUMARA-NUT, the dark, aromatic seed of a tall, tropical South-American tree. It is formed singly in a thick pod. The essential principle, known as coumarin, is a white substance found in small crystals under the coat and between the lobes. Because of a similarity in aroma, tonka-beans—or the coumarin extracted from them and other sources—are frequently employed in the manufacture of imitation vanilla extract. They are, though, heavier and coarser in flavor and their commercial value is less than a tenth of that of even minor-grade vanilla-beans.

TORTILLA, a large, round, thin cake of popular consumption as a bread-substitute in Mexico and numerous other countries. It is made by soaking corn grains until soft, then crushing them to a paste (generally by working them with a roller or similar instrument on a large stone, shaping into the desired size, and cooking on an iron or earthen plate, or on a slab of stone. A triangular section of the cooked tortilla frequently serves as a spoon.

TORTOISE, a title variously applied: (1) to include all testudinate reptiles—both tortoises (including terrapins) and turtles—irrespective of sea-going, fresh-water, semi-aquatic, or land habits of life; (2) as embracing all but sea-going kinds, the marine creatures being known specifically as turtles, and (3) land kinds exclusively—all others being turtles.

The most generally accepted American use of the titles is the second—''tortoises'' including all those that are fresh-water, semi-aquatic, and land; and ''turtles'' embracing those that are sea-going. Popular and trade usages are, however, not thus confined—they are indeed particularly contradictory. The title ''tortoise,'' for example, carries the greatest value in commerce—''tortoise-shell'' commanding a high market price, while ''turtle-shell'' conveys no suggestion of value—yet ''tortoise-shell'' is of a marine turtle. On the other hand, as a food creature, the title ''tortoise'' is valueless, if not objectionable—to be enjoyed, the tortoise must in most sections masquerade as ''turtle,'' or if possible as the salt-marsh ''terrapin'' (itself the queen of all tortoises).

In this book, the separate article on TERRAPIN includes another tortoise — the ''slider,'' and that on TURTLE carries a third, the ''snapper.''

Among other good edible tortoises are the ''gopher,'' a burrowing, land creature of the southeastern states, with a maximum shell-length of about twelve inches—famous in the South in the form of ''gopher gumbo''—a soup (or it might better be termed a stew) of gopher meat, okra-pods, etc.; the several flattish, leathery-coated ''soft-shelled turtles,'' particularly those of the South; and the handsome little ''painted tortoises,'' or ''pond turtles''—variously decorated, as in black or dark green with yellow and red markings.

TOUS-LES-MOIS, a starch, serviceable for blanc-manges and other similar preparations, obtained from the thick rootstocks of several cannas, particularly that of the achira (*Canna edulis*), a tall, handsome species cultivated in the West Indies and elsewhere in tropical America. It closely resembles arrowroot.

TREACLE. See the general article on SIRUP.

TREE-TOMATO, a West-Indian and South-American fruit-vegetable of tomato flavor borne by a large shrub or small tree. It is egg-shaped and about two inches in length, purplish-red or reddish-brown and faintly striped. It is eaten both as a fruit—raw when fully ripe, stewed with sugar, etc.—and also variously prepared as a vegetable.

TREPANG, or Bêche de Mer, or Sea-slug, or Sea-cucumber, commercial and local names for several holothurians—tropical sea-slugs, varying in length from six inches to two feet—sedentary, slow-moving creatures—taken chiefly on coral reefs in southern-Pacific waters, and enjoyed as food in China, the Philippines, and other Oriental countries, as well as by Oriental residents in California and elsewhere in the United States. They are found also on our Pacific coast, but are there grievously slighted. They are usually of cucumber-shape—some smooth, others covered with prickles; and of various colors—brown, black, red-bellied, and white; some with "teats"—rows of starfish-style feet—some without them. Their gathering and preparation constitute an important industry. The most highly valued commercially are the brown slugs with "teats"; their wholesale market-price frequently exceeds $1000 a ton. Locally, others may have the preference, as in the Philippines, where the highest priced is usually the "great black trepang," the *oh nyeow sam,* devoid of both prickles and "teats."

The slugs are prepared by slitting open the back and eviscerating, then boiling and long drying—both in the sun and in smoke-sheds. They are especially popular in the form of a thick, gelatinous soup which is so pleasing to the palate and soothing to the stomach that it has become an accepted part of invalid dietaries in Australia.

The dried trepang varies from a tough, leathery product to one that is literally as dry and hard as a rock. It is in the latter form that one finds it in Oriental stores in this country. Its culinary preparation calls for twenty-four hours soaking in cold water, to be followed by several hours boiling until gelatinously tender (with two or three intermediate cleansings and changes of water), then cutting and grinding very small, and adding to soup-stock for a final, short boiling—or being served separate as an entrée, variously seasoned and garnished.

TRICHINÆ, small parasites or worms, barely visible to the naked eye, which are found sometimes in pork, and which, if they enter the human system, breed rapidly, bore through the walls of the intestines, and bury themselves in the muscles of the sufferer. Because of the possibility of their presence, neither pork nor pork products of any kind should ever be eaten unless thoroughly cooked. Heavily salted meats are generally free from them, but the heat engendered in careful and complete cooking is the only sure preventive.

Furthermore, reliance cannot be placed in the boiling or roasting of large joints, for the heat attained in the center may be insufficient. It is therefore best to give a second cooking—as broiling—to portions cut from a large joint. Small pieces, even if cut raw, are rendered entirely innocuous by thorough broiling over a strong fire, because heat of high temperature thus permeates every portion. Small joints thoroughly boiled or baked are also safe.

When pork from an animal in an otherwise normally healthy condition has been thoroughly cooked, the presence of the destroyed trichinæ does not in any way impair its flavor, digestibility, or food value, for they exist in the flesh only in a dormant, sac-enclosed condition—they have not enjoyed active existence in it, nor do they breed until they find themselves again in the digestive organs of some mammal. There is no poisonous quality in their bodies—their harmfulness is found only in the boring activity which follows their awakening.

Trichinæ are found in other omnivorous animals but this has little interest for the ordinary individual as the pig is the only member of the class which is an article of popular diet. Though they have been found in calves and sheep, it is an exceedingly rare occurrence.

TRIPE, the fatty inner-lining of the stomach of several food-animals, prepared by thorough cleansing and boiling. Its large proportion of connective tissue readily gelatinizes on boiling, rendering it an easily digested food. Its defect is a lack of flavor but in the hands of a competent housewife or cook there are a great many methods of remedying this. Beef tripe is the kind most generally used. It should be thick, white, and fat—if dark and thin, the quality is poor. The "honeycomb" part is generally considered the best, this being, however, a matter of individual opinion. "Plain," or "regular," tripe is smooth. "Pocket honeycomb," shaped like a pocket, is the end of the stomach lining, the outside smooth and the inside honeycombed.

Calf's tripe is more tender than beef tripe, but only small quantities are marketed. Sheep's stomachs are used in the preparation of HAGGIS (which see). Pigs' stomachs are utilized for head-cheese, etc. (see SAUSAGES).

Canned tripe is cooked with milk and salt.

TROUT, the common title for a large group of fishes, found principally in fresh water, closely related to the salmon and many of them of the same genus. Their size, appearance, and characteristics are greatly affected by their environment, and the confusion of the layman is further increased by contradictory colloquial names.

The most famous of American trouts are the Rainbow and the Brook, or Speckled (see the color-page opposite). The former—a small, highly colored fish with a maximum weight of about six pounds, though rarely exceeding two to three pounds—is native only to the streams of the California coast ranges but it now extends, by introduction, throughout the East and across the waters to Europe, South Africa, and many other parts of the world. The Brook, or Speckled, is of the East, but it has, similarly, been spread west to the Pacific slope as well as also to foreign countries. It seldom avoids the angler long enough to reach its possible weight (under good conditions) of about twelve pounds and is generally hooked before it has attained, or at all events before it has exceeded, a pound or so. Both the Rainbow and the Brook are noted as game-fish.

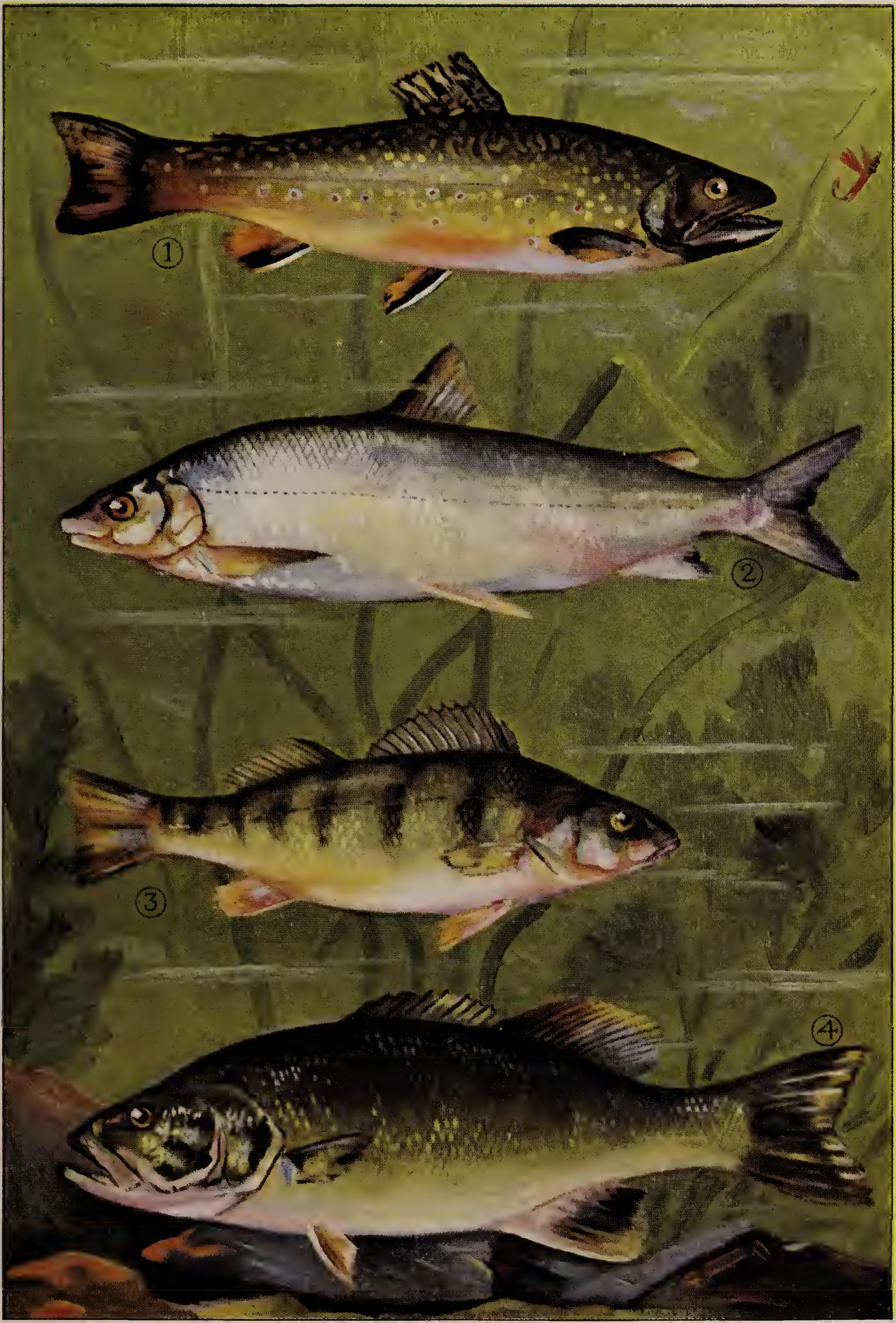
The largest of American trout is the Great Lakes, or "Mackinaw," widely distributed in northern waters. Big specimens have exceeded 125 pounds, but fifteen to twenty pounds constitutes a good size in the big lakes, and from two to seven in lesser waters. The catch is an important industry.

Among other important types are the Steelhead (or "salmon-trout"), the Cut-throat (which takes its name from its deep-red throat blotch), and the Dolly Varden. All three are of the Pacific slope and the first two are fishes of good size, occasionally reaching twenty pounds, the Steelhead averaging the larger. The Cut-throats, particularly, are found in numerous forms and sizes and are known under many local titles. In some parts they have become inextricably mingled with Steelheads by repeated crossings. The Dolly Varden is somewhat smaller in maximum weight. It is red and black spotted and in many respects resembles the Brook-trout.

The Steelhead has been successfully established in the Great Lakes and elsewhere.

The Brown trout (the European "Brook-trout") has been introduced as a substitute for the American Brook-trout in places where that has been exterminated either by over-fishing or by changes in river conditions. It is hardier and easily naturalized but it has neither the beauty nor the gameness of the American fish.

Trout are easily raised in protected waters — the quality of their flesh being, though, much inferior to that of the wild fish.



FRESH-WATER FISH

(1) Brook Trout; Speckled Trout
(2) Common Whitefish; Humpback Whitefish; Highback Whitefish
(3) Yellow Perch; Ringed Perch
(4) Small-mouthed Black Bass; Black Bass

The illustrations are a little less than one-half the length of fair specimens.

TRUFFLE, a kind of fungus. It grows in clusters a few inches under the ground —somewhat like a potato, but without either roots or upper parts of any description. Furthermore, the spores, or seeds, concealed in its cells never develop within them! The key to the mystery is found in the activities of insects attracted by the peculiar, aromatic truffle odor permeating the soil—they break into the fungus and later unwittingly carry its spores onto the leaves of the trees nearby. The spores are there developed to some extent and then carried back to the soil as the leaves fall, to sprout downwards and commence the formation of new fungi—and thus a new mystery for the uninitiated!

Truffles so freely absorb the nutriment of the soil that nothing except the trees which give them shade is able to grow in the vicinity, so one recognizes a *truffière* by its bare and generally somewhat cracked surface. As, however, the fungi themselves show no sign above the ground, they are generally located by scent by trained, leashed dogs or hogs. The harvest takes place in winter and lasts for three or four months. The market perforce relies upon wild truffles, for attempts to grow them commercially have never proved successful.

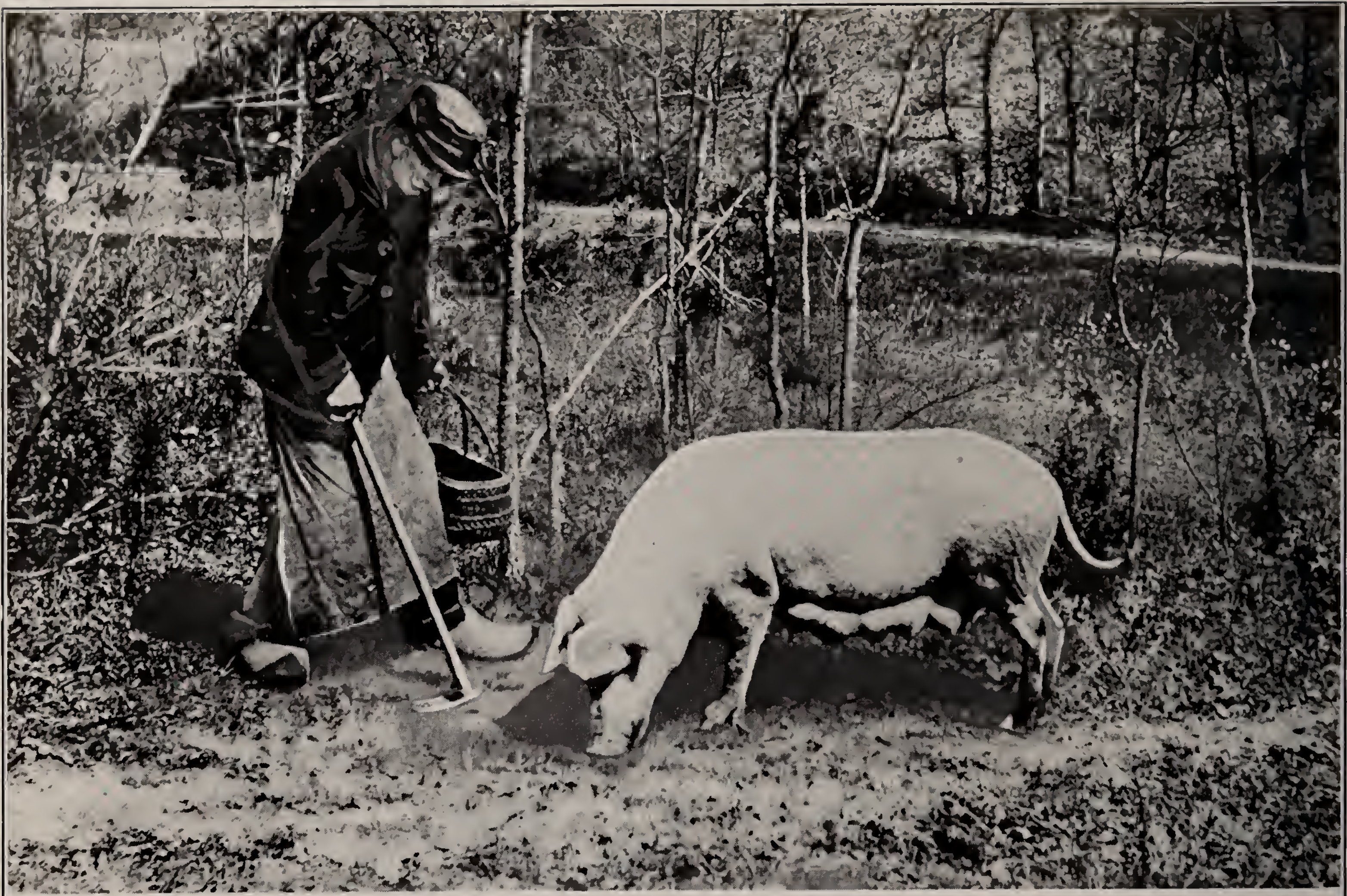
The most famous species is the Périgord, which takes its name from the former French province of Périgord, the greater part of which is included in the present department of Dordogne. Its high reputation is due to its especially delicate aroma and its regularity of appearance. It varies in size from that of a walnut to a medium-size potato, and is roundish, with a rough, warty, brown or black exterior. Inside, it is of a blackish grey or black according to its age, marbled with fine white veins. It grows most freely in forests of *chêne nain* (a dwarf oak), beech, and some other trees—where the soil is chalky or clayey, light in composition, and comparatively free from stones, and preferably on sloping ground. Warmth and plenty of rain are essential for a good crop.

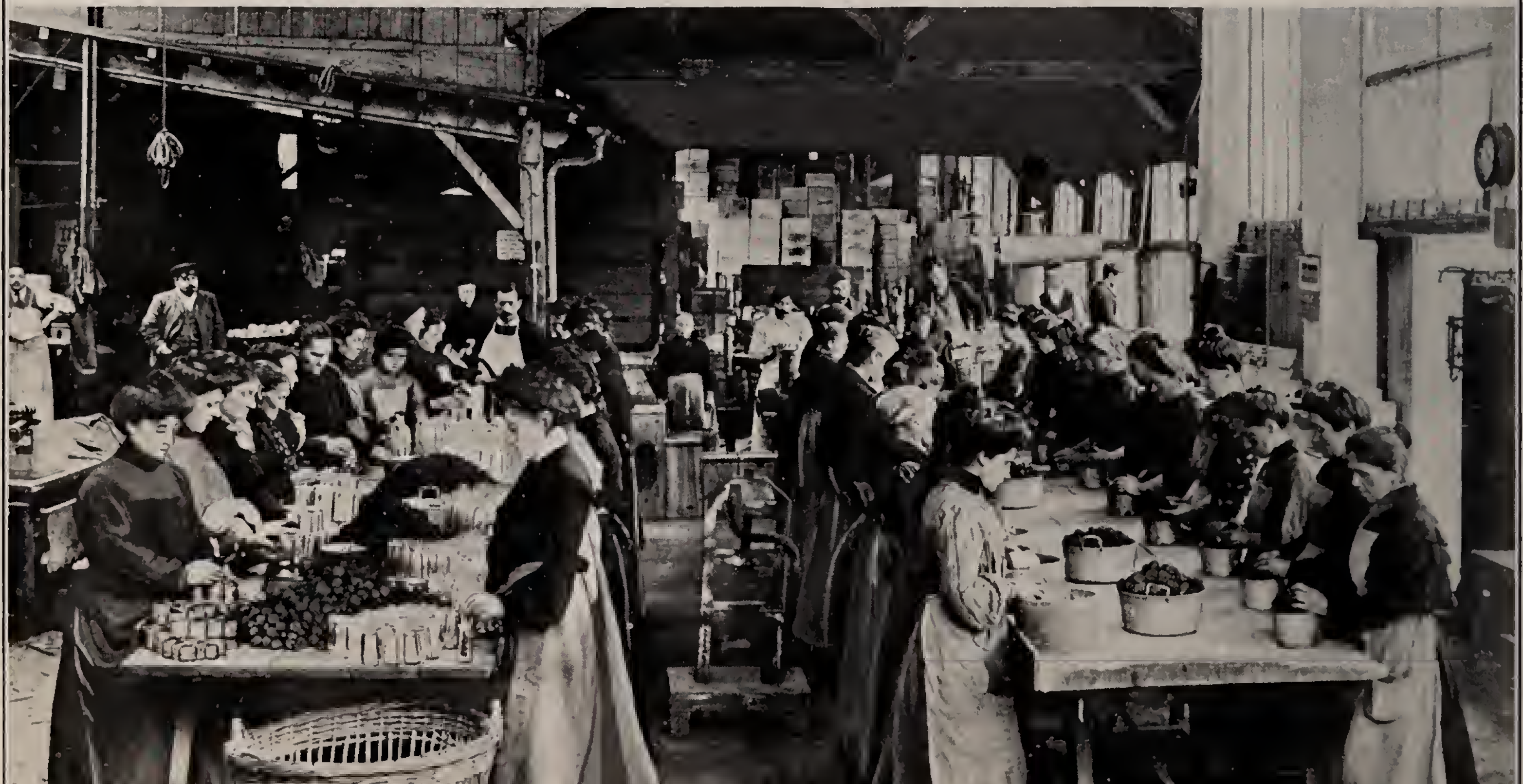
The truffles of other parts of France, as also those of Germany, Spain, England, California, and other parts of the world, are all classed as decidedly inferior to the Périgord.

The white truffle is a minor German and English variety which grows half above ground, is whitish-red, and commonly of the size of a large walnut.

The Italian truffle, of somewhat different type, is brownish outside, pale liver-colored or yellowish within, and garlic-scented. It is generally of about the same

Périgord truffles





Hunting truffles with trained hogs

Sorting and putting-up in bottles and cans size as other kinds, but occasionally attains to much greater proportions, up to masses of from ten to twelve pounds. It has comparatively little flavor.

The flesh of all varieties is meaty rather than vegetable in character.

The preparation of Périgord truffles for the market includes the removal of the adhering earth, washing with special brushes, grading by size and quality, and (usually) putting in cans, boxes, jars, or bottles for the cooking necessary for their preservation. Great care is taken to minimize the impairment of their delicacy. Some loss is inevitable—no canned, or otherwise preserved, truffle has the full aroma of one fresh dug.

The choicest are those which are the largest, roundest, blackest, and most highly perfumed. They are marketed with the skins removed as ''peeled truffles.'' The next in grade are those which have been simply brushed (''brushed truffles''), and then the pieces and parings (the residue from peeled truffles).

Truffles are used chiefly for garnishing and dressing. The best qualities are expensive, but the parings are sold at comparatively low prices and will answer all ordinary requirements.

If only part of the contents of a can is used, it should be tightly covered in order to protect the remaining truffles as much as possible from contact with the air. If the opened can is to be kept for a considerable time, the advice of a well-known chef is to take the additional precaution of pouring bacon or poultry fat over the remaining truffles. As, however, no precaution will infallibly preserve the aroma and full flavor, it is preferable to purchase in sizes to suit one's needs, so that the entire contents of a can may be consumed shortly after opening. This is generally possible, for truffles are put up in containers of many styles, the smallest being very small indeed.

TUNA, or Tunny. The original tuna, or tunny, of fame among sportsmen is the blue-fin, or ''leaping tuna,'' found in the Mediterranean and along the Atlantic and Pacific coasts, distinguished by its short pectoral, or side, fin, and its great size; pearly black or dark blue above, with silvery sides and white or dusky, silver-spotted belly. In our eastern waters it has attained lengths of from ten to fifteen feet and a weight of one thousand pounds and upward. The Pacific Coast maximum is somewhere around 300 pounds. In California, tunas are hunted by anglers as one of the giants of game-fishes, but commercially they are generally caught by huge purse-seines cast in a circle around the schools, and the catch is commonly of the young fish, less than four feet in length and averaging thirty-six pounds in weight. In the Mediterranean they are taken in anchored traps with long leads and funnel-shaped entrances which pass them through successive enclosures to the heart of the trap, where they are speared.

Very little tuna meat is sold fresh in our markets, the canning industry absorbing nearly all the catch. In other countries, the reverse is the general condition. The canned flesh of the blue-fin is very light buff or pinkish. It is not coarse for the size of the fish, and only slightly, if at all, gamy. The dark meat found (as in all tunas) along the middle of its sides, is discarded, to be later converted into fertilizer.

Choicer, but less abundant, is the yellow-fin, known by its longer side-fins and yellow finlets. Its meat is more delicate in texture and lighter in color—it is often as white as that of the fish next to be considered—the albacore.

The albacore, or ''long-fin tuna,'' is a related genus, commercially covered also by the mantle of the tuna title. It is comparatively small—the average is less than twenty pounds, though specimens have been caught weighing eighty pounds—and it is much more expensive to catch, for (instead of being netted in numbers) it must be taken by hook and line (the schools being enticed to the sides of the boats by bait thrown overboard). In compensation, it carries the whitest and mildest of all ''tuna'' meat. If a can of it is thoroughly chilled before opening and then cut in dice for use in salads, it easily passes for the white meat of chicken. Its flesh is sometimes faintly pink, but is never as dark as that of the blue-fin.

The smallest, and by some considered the best, is the striped tuna, commonly called ''skipjack'' in California and ''bonito'' in Europe. It is frequently confused with the California bonito (*Sarda chilensis*) but is distinguished from it by the stripes on its lower sides being *parallel* with the outline of the under-body. The fish canned average two feet in length and between six and seven pounds in weight. The meat has a mild gamy flavor, and a pinkish buff tinge. It is taken by the albacore fishermen and in the same way, and is said by them to be the swiftest and most beautiful of all the tunas.

TURBOT, a large, wide, fleshy, gelatinous-skinned, European, salt-water flatfish, without scales but marked on its dark upper-parts with conical, bony tubercles. The average market weight is less than ten pounds, but exceptional specimens treble that figure. The flesh is delicate and generally white—tending, however, to darker, and being considered more choice, under the upper skin. A limited quantity is annually imported.

What is called ''American turbot'' is generally chicken halibut—though it may be any one of various other flatfish.

TURKEY, a native of North America (and still found wild in some parts) which has been domesticated here and in Europe for 400 years. It is distinguished by its bare head, wattled neck, short curved bill, handsome plumage, and large size—the male

Scene on a turkey farm

being further marked by the conical fleshy caruncle surmounting the bill, the tuft of long hair hanging from the base of the neck, and the broad rounded tail, at times erected and spread like a fan as he struts about with plumage puffed out and wings rubbing on the ground, uttering his loud "gobble."

The two principal varieties of the wild turkey, and the ancestors of all our domestic turkeys, are the *Common,* the original species of the eastern and central United States, whose plumage is a blending of black. bronze, and coppery gold, and the *Mexican,* of the southwestern states and northern Mexico, of blacker color shaded with bronze and with feathers tipped with white. There is a third important wild type—the most beautiful of all—known as the *Ocellated,* or Honduras, a native of Central America, but it has never been successfully bred in more northern countries. The wild turkeys are by far the biggest of American game-birds — averaging twelve pounds for young toms and eight for young hens.

A prize Bronze turkey-cock

The Bronze turkey is the largest and handsomest of the domestic birds and the most popular among raisers. Its plumage is a rich copperish bronze on a background of black and brown, with white tips to the tail coverts and main tail-feathers. Its weight for the market ranges as high as thirty-six pounds, and some older farm birds have exceeded forty. The standard weight of a young tom is twenty-five pounds, and of a young hen, sixteen. Good market weights are respectively fifteen and twelve. The female has the same coloring as the male, but in more subdued tints.

Next in size and importance are the Bourbon Red (dark brownish red with white wings and tail), the Narragansett (of greyish appearance from the grey bands tipping its black feathers), the White Holland, the Black, and the Slate.

A young turkey should be plump and fat, and the end of the breast-bone should bend easily. Many people are of the opinion that the flesh of the young male is better flavored than that of the female.

TURMERIC, the aromatic rootstock of a southern-Asia plant, sold both in root form and as a powder. The hard, resinous flesh of the dried root varies from a dark orange to a deep reddish brown, but in powdered form it exhibits its characteristic yellow. It is the principal ingredient of curry powders and is also used for mixing with mustard and other spices. Its pigment, marketed as curcuma oil and curcumin, is employed as a dye-stuff, etc.

TURNIP, the fleshy root—or, more accurately, an enormous thickening of the primary root together with the young stem-base—of a plant largely grown in every temperate climate. It is found in numerous shapes — long, round, and squatty — being commonly somewhat flattened instead of long. It ranges from the size of an orange to a weight of forty pounds, and from varieties which are popular as a table-vegetable, either separate or mixed with others in soups and stews, to kinds that are grown exclusively for feeding cattle. The most delicate flesh is found in medium-sized white turnips of good strain. Many people, however, consider such roots insipid, and prefer the more strongly flavored yellow types.

The percentage of assimilable food material in the turnip is small, but its mineral content is good and it serves as an agreeable variation in vegetables. The freshly expressed, raw juice has high antiscorbutic value.

Young, quickly-grown turnip-tops are excellent as greens and are particularly valuable for their minerals. Those obtained by special sprouting of white turnips (as for Barbe de Capucin, see CHICORY) may also be served raw in salads.

Long roots sold as "turnips" are generally RUTABAGAS (which see). The turnip tends botanically more toward the mustards, the rutabaga to the cabbages.

See also references in the general article on VEGETABLES.

TURTLE. The "hawksbill," the smallest of marine turtles, is the most highly valued commercially because of the tortoise-shell that it yields, but from a food standpoint the most important is one of the very largest—the famous Green Turtle of sub-tropical and tropical waters (see the color-page opposite).

The green turtle has been known to grow to a weight of 800 pounds or more, but these very big specimens are seldom handled commercially. The average market size ranges from fifty to 300 pounds, those between the two extremes being preferred, being considered choicer as well as much easier to handle. The majority of those brought alive to our eastern markets come from Florida, Cuba, and the British West Indies, the large South-American supply going chiefly to Europe.

For shipment, the turtle's flippers are tied loosely together and it is placed on its back. This position is essential in order to keep it in good condition. If it were not tied, it would speedily exhaust itself by continually thrashing about—and would also be liable to injure its companions—and if it be laid on its stomach on a hard surface, it dies of suffocation. No attempt is made to feed it en route as under ordinary conditions of transportation it will not eat—but this is no hardship—green turtles can easily go for six weeks without food, and for three weeks or longer without suffering any diminution of weight.

If to be held for any considerable length of time after its receipt, it is loosed and kept in a dark, warm place—preferably, if the weather be warm, with part of the floor covered with a few inches of salt water. Some localities have "coops" built under docks.

GREEN TURTLE
Greatly Reduced

Turtles on a ''crawl,'' Kingston, Jamaica

The most prized of the edible portions of the green turtle are the outer circumferences of its two heavy shells—the upper known as ''calipash,'' and the lower as ''calipee.'' That of the upper shell—so solid and tough that it adequately protects the living creature from any enemy save man—becomes on cooking the dull-green, delicate, gelatinous substance which gives character and fame to ''Green Turtle Soup.'' Calipee is similarly gelatinous but is lighter and yellowish. For fine soup, only the calipash and calipee are used (these being added to specially prepared soup-stock) the entire edible carcass being otherwise disposed of—as stew, steak, etc. The best steaks are from the lean flesh under the top shell. The color of the raw meat is somewhat like veal.

Canned green turtle, put up in cans and jars, may be either ''mixed meat''—pieces of calipash, calipee, and steak—or ''clear green'' (calipash only).

Only the ''cow'' green turtle is generally sought, the shell of the bull not being considered worth the trouble of cooking, and its flesh being coarser. The bull is easily recognized by its long tail.

In its horny hardness and great contrast before and after cooking, the edible part of the shell of the green turtle is curiously similar to the dried Trepang (which see). The ordinary observer seeing and testing them uncooked finds it difficult to realize that by proper preparation both become particularly tender and delicate articles of diet.

The logger-head, which frequently masquerades as the hero of the turtle soup of the restaurant, is also a large creature, up to 500 pounds or more, and also of warm waters, but its shells are not used and its dark red flesh is much inferior.

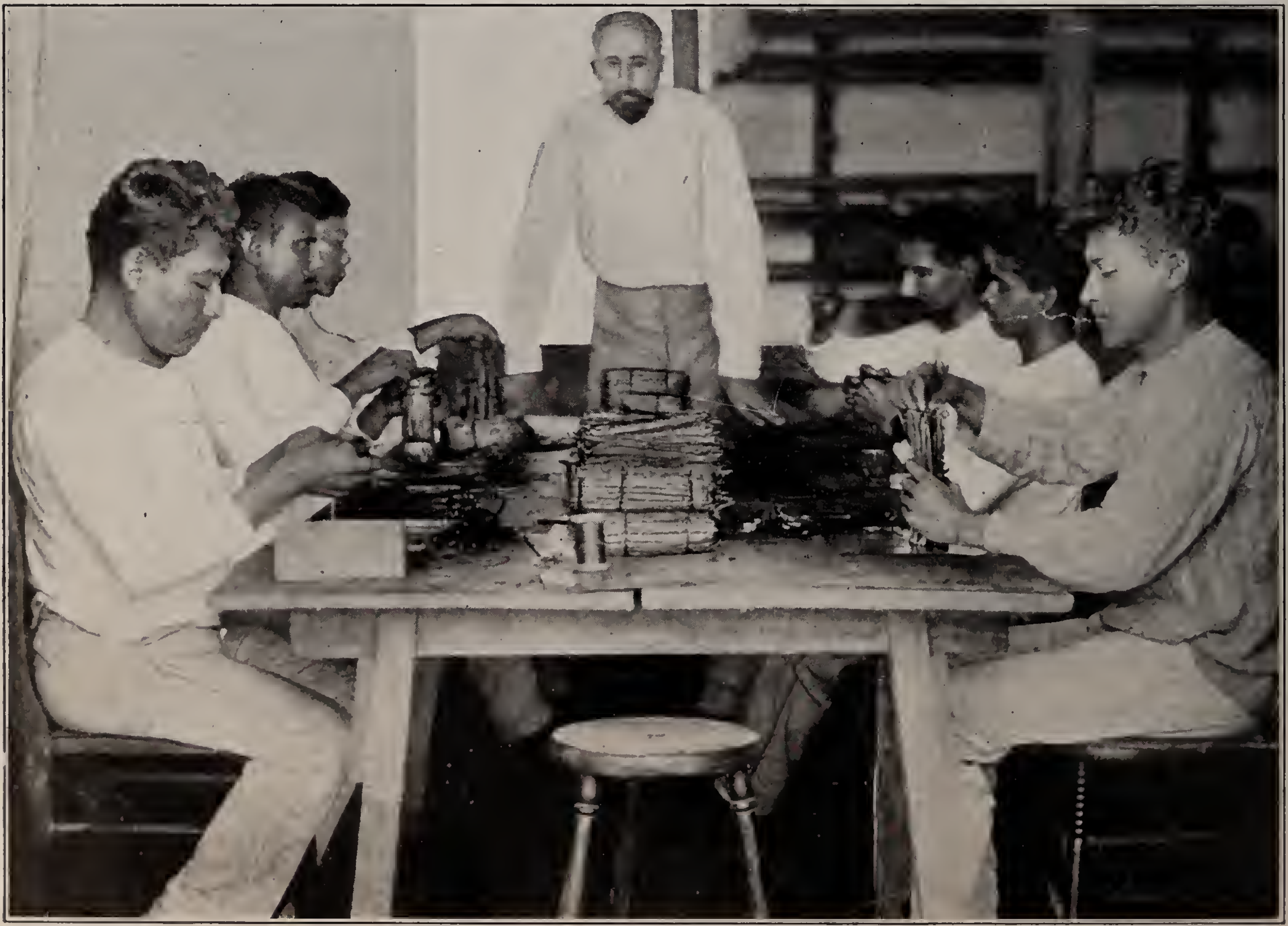
A third of importance is the (Common) snapper, or ''snapping-turtle'', a big-headed, strong-jawed, fresh-water tortoise with a long, alligator-style tail. It is widely distributed, especially in the Upper Mississippi Valley. Its average market weight is from ten to fifteen pounds, though sometimes above fifty. Closely related to it is the larger "alligator snapping-turtle" with a maximum weight of more than 100 pounds, a head as big as that of a bull terrier, and jaws that can sever a man's hand.

Green turtle eggs, between those of pigeons and hens in size and enclosed in parchment-like shells, are considered a delicacy.

UDO, a perennial Japanese plant valued for its young blanched shoots. It is easily grown and affords a generous crop. In its native home the shoots are largely consumed raw with salt or boiled with soy sauce. For American palates the most generally acceptable method is to slice them very thin, let them stand in ice-water for an hour or so to remove any excess of resinous flavor, and then serve with French dressing. They have a fresh, agreeably "wild" flavor and the crispness of tender young celery. Their value is enhanced by their good keeping quality—they can be stored for winter use with very little loss.

Udo may also be cooked in any way suitable for asparagus—except that the first water should be discarded after a short boiling.

VANILLA. The true vanilla-bean from which genuine vanilla extract is made, is the dried pod of the Mexican·Common vanilla (*V. planifolia*), a climbing vine of the orchid family. The plant is now extensively grown also in the West and East Indies

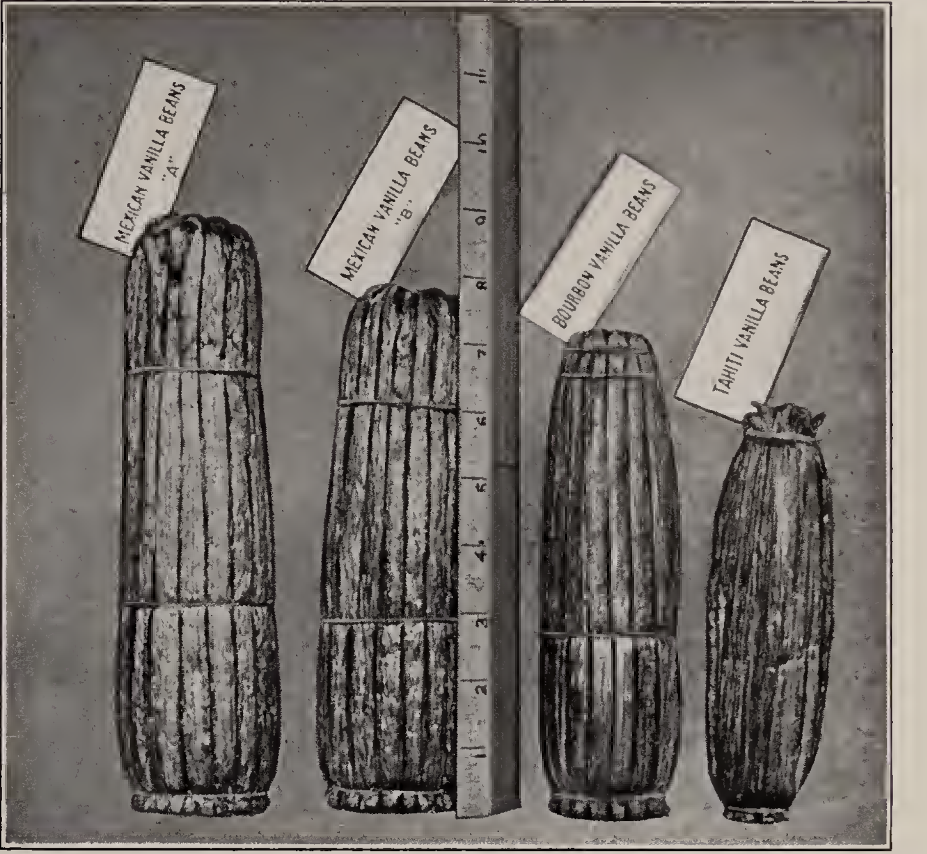


American Trading Co.

Bunching vanilla-beans in a Mexican packing house and other tropical parts, but the best beans are still those from the rich lowlands of southern Mexico.

After the Mexican beans come the three following classes, named in the order of their commercial value: Bourbon, from the French East-Indian islands of Bourbon, or Réunion, Comores, Madagascar, and Seychelles; "South-American," from the French West Indies; and Tahiti, or wild vanilla-beans, from the French group of Society Islands. They are shorter than the Mexican and the lower grades a great deal cheaper. The Tahiti hardly deserves the name, for its flavor resembles prune juice rather than vanilla, and its fragrance, though indisputable, is rather that of heliotrope.

The article on Cocoa and Chocolate refers to the Mexican use of vanilla as a flavoring agent long prior to Europe's discovery of America, and modern generations of Americans —the largest consumers of the best Mexican grades — have abundantly endorsed Montezuma's appreciation of its fragrant delicacy.



Mexican, Bourbon, and Tahiti vanilla-beans

In its wild state, the orchid attaches itself to anything at hand—rocks, shrubs, and trees—growing freely and intertwining its long, fleshy stems and tapering leaves. Under cultivation, it is trained over trelliswork or around trees (see the frontispiece color-page). The flowers resemble the tuberose in appearance, color, and fragrance, and from each blossom springs a little pod which grows rapidly until it reaches six to ten inches in length—looking then like a cross between a big string-bean and a thin banana.

Vanilla picking begins in November and continues with increasing importance through December and January, the pods being gathered shortly before they ripen —as soon as they begin to show a yellowish tint.

When fresh-gathered they weigh from fifty to sixty pounds per thousand, but they dwindle in preparation to twelve pounds or less, their original circumference of one to two inches shrinking meanwhile to very attenuated dimensions.

They are first "sweated" and cured—artificial heat in special ovens having largely taken the place of the former method of sweating between blankets laid in the sun. Then comes a gradual browning by exposure to the sun until they attain a rich chocolate color, bordering at times on black, and a final drying under cover for twenty to forty days. During all this time they are constantly inspected, each pod being given individual attention to see that it receives just the right curing.

The dried beans—long and slender, soapy or waxy to the touch, and highly aromatic—are put up in bundles of twelve to eighteen ounces each and pressed close, the ends being rounded by turning the tops inward. The very choicest are held for another month or two and are then carefully packed in cans and shipped in cedarwood cases.

The inferior beans—those of poor size or quality—are cut into pieces and sold at one-half to two-thirds the price of the best grades. They are known in trade circles as "cuts." Those which have split during the curing process are also set apart to be sold as "splits."

After storage for a short time, the beans generally show a white, frosty coating of vanillin crystals. Neither the extent of the frosting nor the percentage of vanillin (the chief odoriferous principle) is however a test of quality, as it is the peculiar combination of the vanillin with other flavors and odors which gives such high value to the Mexican beans—in vanillin itself they do not, as a rule, show as much as the cheaper East-Indian varieties.

VANILLA EXTRACT. In making vanilla extract, the beans are cut fine and immersed in a mixture of grain-alcohol and water. For the ordinary extract, the liquid is poured off a few days later and bottled, but a few manufacturers of the highest-grade product allow it to remain in the casks for months and use the same casks for years, on the theory that this process gives a superior aroma. Many extracts also contain small percentages of sugar and glycerin.

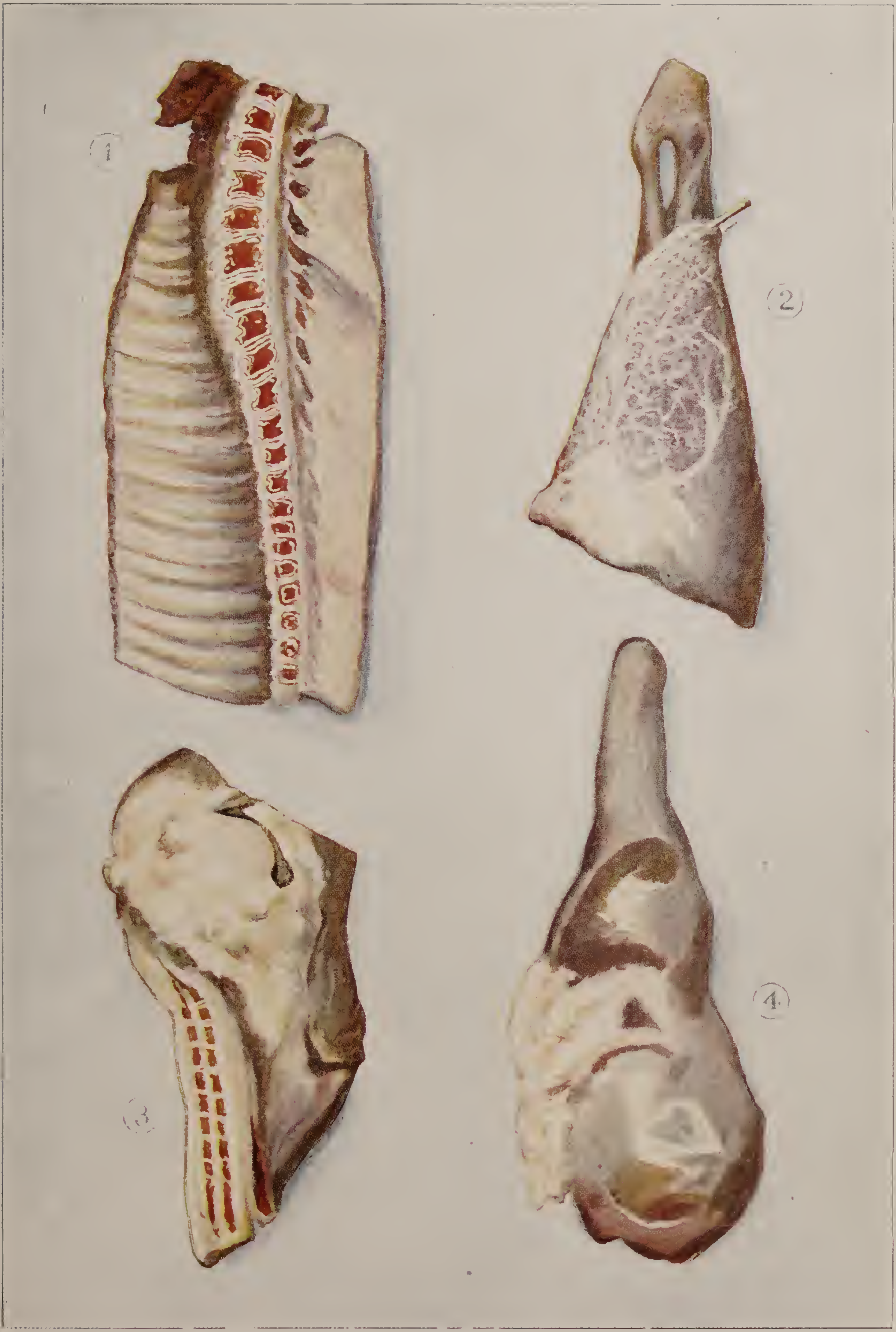
The best extracts are made from selected Mexican beans. Medium grades come from lower-quality Mexican beans, Mexican "cuts," etc., and other varieties of true vanilla-beans, or their blends with Mexican beans. Low grade and imitation products are manufactured from Tahiti beans, artificial vanillin, coumarin (see TONKA-BEAN), etc. Synthetic eugenol, a chemical duplication of the principal constituent of oil of cloves, is the source of the bulk of the artificial vanillin used.

The vanilla-bean is also sold to a small extent, whole and powdered—the whole bean separately in glass tubes and the powder in cans or bottles—but a good extract is more serviceable for the average consumer.

VANILLA "SUGAR," or Vanilla "Powder," a preparation of diversified composition. Originally, it consisted of a mixture of ground vanilla-beans and sugar. Now starch, or a mixture of sugar and starch, is the customary inert ingredient, and the flavoring agent is a mixture of vanilla-bean, synthetic vanillin, and coumarin—or of synthetic vanillin and coumarin (seven to one or thereabouts) alone. In Germany, calcium carbonate is also used as an inert. These products are largely sold to ice cream manufacturers—for their purposes synthetic vanillin is superior to the natural as it yields more flavor under the extreme cold of ice cream manufacture. For general household purposes, the "sugar" or "powder," whether of natural or artificial flavor, is wasteful in comparison with the liquid extract.

VEAL, the dressed carcass of a calf. It requires close attention on the part of the retailer, as it is more difficult to keep than beef. "Hog-dressed" veal is the carcass left in its hide after being trimmed and cleaned—in that form it best retains its moisture and flavor.

The carcass is generally dressed and cut in accordance with one or other of the diagrams on page 545. *Diagram I.* is a popular eastern method; *Diagrams II.* and *III.* are adapted from a bulletin of the United States Department of Agriculture. The



(1) Rack
(3) Loin

VEAL

(2) Leg
(4) Shoulder

"chuck" (Diagram III.) is sometimes cut so as to include part of that designated in the same diagram as "shoulder," thus following more nearly the method of subdividing beef. In many localities, the fore and hind shanks are known as the "knuckles." See also the color-page facing 544.

A market "saddle" is the two hindquarters unsplit, and a market "rack" is the two forequarters unsplit.

The flesh should be pink and firm. If it is bluish or flabby, it should not be accepted. It requires to be well cooked to fully develop its nutritive qualities.

The most desirable is "milk veal," the flesh of milk-fed calves. This commonly means calves six weeks of age or younger, and from 100 to 120 pounds in weight. After that age they are usually fed on other foods and their flesh becomes darker and less juicy. In special dairy-raising, the milk diet may be continued longer and a milk-fed calf may then weigh up to and over 135 pounds. The flesh is most delicate if of a calf that has been kept tethered, or closely stalled, so that it has put on flesh and fat instead of running about and developing muscle.

"Bob veal," that from calves under four weeks old, has long been banned as dangerous, or at least undesirable, food. Careful scientific investigation has thrown this theory into the discard with numerous other unfounded traditions—and has proved the flesh of the very young calf to be as safe and wholesome as any other meat. It is, however, generally lacking in fat and may be somewhat drier and less flavory than better developed veal. The shrinkage is also greater, and in consequence it does not present an especially attractive appearance as a roast joint—it is more suitable for stewing, or broiling with the bone removed.

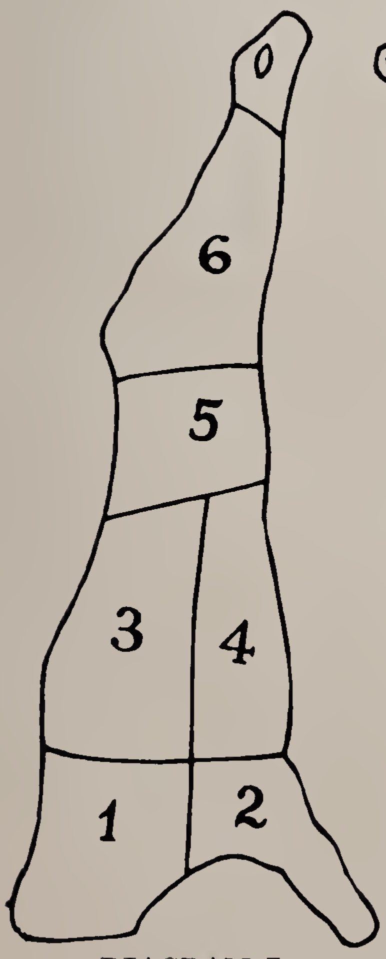


DIAGRAM I.

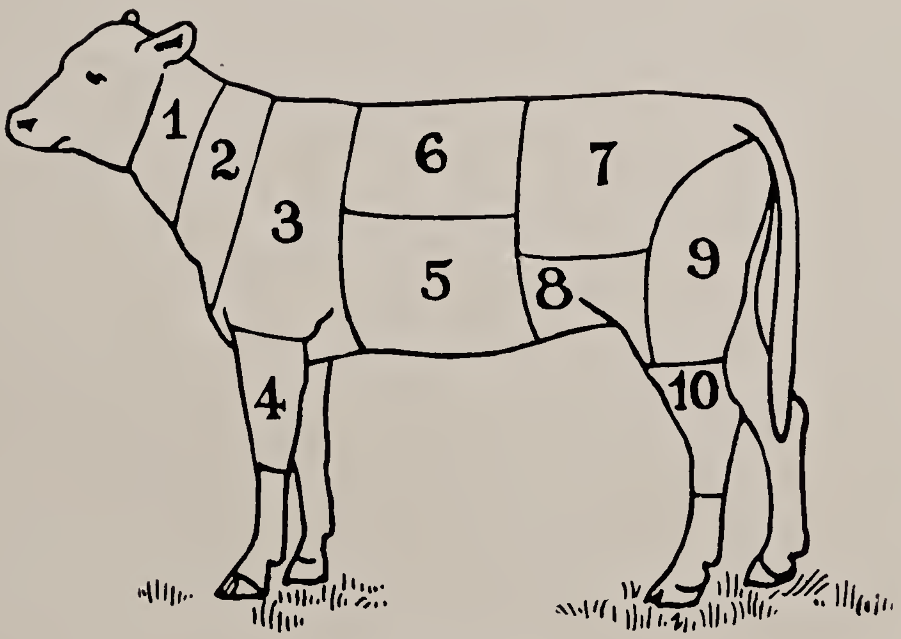


DIAGRAM II.

Diagram I.

1. Neck Piece
2. Shoulder
3. Ribs, or Rack
4. Breast
5. Loin
6. Leg

Forequarter—1, 2, 3, 4
Hindquarter—5, 6

Diagrams II. and III.

1. Neck
2. Chuck
3. Shoulder
4. Fore Shank
5. Breast
6. Ribs
7. Loin
8. Flank
9. Leg
10. Hind Shank

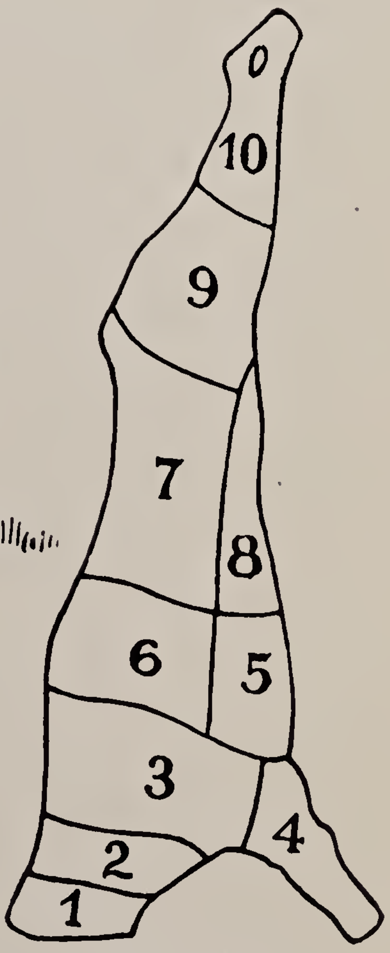


DIAGRAM III.

VEGETABLE-GELATIN, or Vegetable-isinglass. See Agar-agar.

VEGETABLE MARROW, a kind of squash, of the same species as the true pumpkin, eaten as a vegetable. It is very popular in England, but is not often seen here. The best English type is (when full grown) nine inches or more in length and four inches or so in diameter, lightly ribbed, with green to yellow rind and light-colored flesh. If cut when about half grown and not over-boiled, its flesh is sweet, nutty, and tender.

The Italian vegetable marrow is a distinct variety, reaching a length of twenty or more inches, and with mottled, dark-green rind and orange flesh. In Italy it is gathered when very small—sometimes when no larger than your finger and before the flower is open. These little marrows are very tender and delicate in flavor and the vines thus plucked continue to bear profusely for months. This is a plan worthy of trial in the American home vegetable-garden.

VEGETABLES. The average American housewife is increasing her use of vegetables—to the advantage of the general health of the community—but there is room for still greater appreciation of them as part of the every-day diet. Many are especially valuable for their vitamins and minerals. Some—as beans, beets, peas, and potatoes—are also highly nutritious, and others — as greens — are additionally useful for their alkalinity and render important assistance to the intestines by the peristaltic action of their moist bulk. A delightful diversity may be given to meals by the use of vegetables in soups, meat-pies, stews, omelettes, and salads—such use being supplementary to their ordinary separate service boiled, baked, or fried.

In making soup, some young vegetables (such as very small carrots, beets, and turnips) may advantageously be added whole (both leaves and roots) a sufficient length of time ahead of service to ensure thorough tenderness. Long over-cooking should be avoided—this results in losing or nullifying much of their flavor and destroying their vitamin-C value. Other vegetables—as green peas, cauliflower in small sprigs, lima beans, and fancy-cut mixed vegetables—are best cooked separately in a very little water and added shortly before serving. Many left-over vegetables can be added, with results as pleasing as economical.

For separate service there are many possibilities in attractive combinations—two or more kinds being mixed, either during cooking or before serving, according to circumstances. Succotash, a mixture of sweet corn and green lima beans, is a popular example of this idea, but it is only one of numerous others agreeable to the palate—among them, carrots and peas, corn and tomatoes, and cooked celery and creamed potato. Onions, parsley, sweet peppers, etc., may also be added in small quantities to a great many vegetables and vegetable dishes in order to give them a new relish.

The tops of beets, turnips, radishes, and other root vegetables and salads should always be saved. Thoroughly washed, they can be used as greens, if young, or added to soups, if more mature. They are particularly useful (if tender) for cooking with spinach, etc. Greens are more generally liked if thus blended—if two or three kinds of different characteristics are cooked together.

Tubers, roots, and all greens should be firm and crisp before cooking. Wilted specimens may generally be freshened by soaking in cold water—the time necessary depends on their age, varying from a few minutes to several hours.

Spinach and other low-growing leaves—except the inner leaves of "head" vegetables (as the head styles of cabbage and lettuce)—should be thoroughly washed in several waters to remove all soil or other dirt.

Head vegetables should be soaked before using, head downward, in cold, salted water containing a little vinegar. This will draw out worms and caterpillars.

Vegetables that have been scraped or pared should be set in cold water until ready to cook, in order to avoid discoloration.

Baking is, from the standpoint of food values, the most satisfactory method of cooking potatoes and other suitable vegetables when intended for separate service, because little, if any, food component is lost in the process.

In boiling cabbage, turnips, and similar vegetables of sulphurous content, a large quantity of water is desirable, and the water is best discarded after cooking, but the reverse in both respects should be the general rule, or the loss of sweetness in green peas, beets, carrots, etc., will be considerable. Furthermore, all vegetables, except dried peas, beans, and similar products, should be placed in boiling water. If the water is to be thrown away afterwards, it should (in a majority of cases) be continuously maintained at the boiling point so that as little as possible of the food value escapes. Rapid boiling is suitable for most varieties, but it should be more gentle for cauliflower and young tubers in order to avoid breaking them, and should be reduced to a simmer for green, shelled peas and beans.

Winter potatoes, beets, and other roots need considerably longer cooking than the same kinds in summer.

It is a common, but extremely unwise, practice to add baking-soda to the water used for boiling green vegetables in order to retain their green color. The result (as noted also in the article on SODA) is to lower or destroy their vitamin-C content (see FOOD VALUES). There is not the same objection to the use of a little soda in boiling ordinary ripe beans, peas, and lentils if it is actually necessary to hasten their cooking—but the quantity must be small or their flavor will be impaired. It should never be added in the cooking of germinated, or sprouted peas, etc. (see GERMINATED SEEDS) as the result is to destroy the virtue for which chiefly they have been germinated.

Retailers who handle vegetables and fruits chiefly or exclusively are sometimes termed "greengrocers." Many general grocers also have discovered the profit to be derived from these lines, and the public that they can often purchase them from the grocer at a cheaper rate than from the special dealer. It requires, though, a good deal of time and attention to handle fruits and vegetables profitably and satisfactorily, and a grocer who is not in a position to devote a proper share of both to them had better confine his energies to staple goods. It is important to have the earliest supplies as soon as Florida and other parts send them in. Equally so is it to be particular in buying—to confine oneself to handling only fine, fresh vegetables and sound, ripe fruits.

The supply should always be lighter than the demand—in which it differs from the balance of the grocer's stock. Late enquiries for perishable kinds are better unfilled than prepared for, since the latter means in most cases that the grocer will be still carrying part of his supply when he closes, and will have deteriorated stuff on his hands with which to commence business next day.

Many merchants keep their stock of vegetables fresh and crisp by occasionally spraying them with water. Judgment and experience must be exercised in so doing, or the result is liable to be the reverse of satisfactory. Tomatoes will soften and spoil if so moistened; string and wax beans will grow tough if applications are frequent; and white wax-beans will show rust marks where the water dries on them. Radishes will take a lot of water and be the better for it, but their tops may rot unless care is exercised. On the other hand, spinach, lettuce, and other green leaves will generally improve with sprinkling and, if they have become dry, by the water-soaking suggested to the housewife in an earlier paragraph of this article.

Green peas never need sprinkling, but a cool place is essential, for heat dries and bleaches them.

Beets require very little water—they will ordinarily keep fresh for several days.

All vegetables, except those for immediate sale, should be stored in a dark, dry place of cool, even temperature.

See also the special articles under the titles of individual vegetables and the general article on Dried, Evaporated, and Dehydrated Foods.

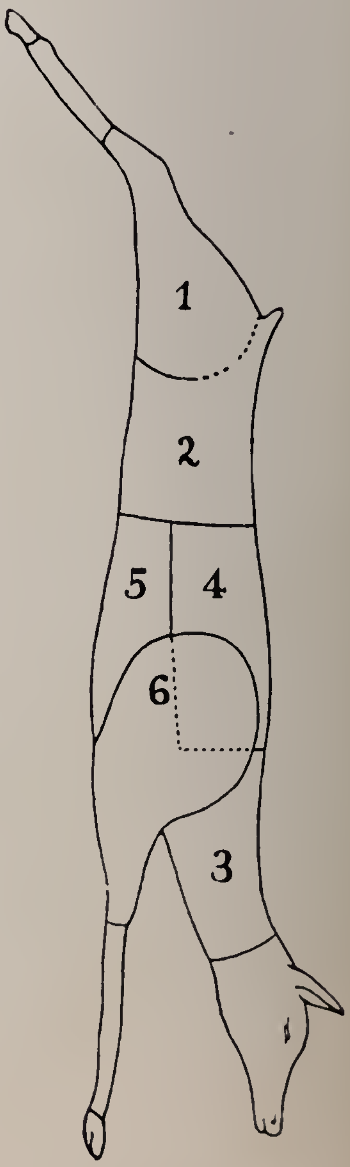
VELOUTÉ ("Velvety"), rich chicken and veal broth, thickened and strained until of smooth appearance. It is the principal "white" sauce, as Espagnole is the chief "brown" sauce.

VENISON, the flesh of all kinds of deer. That of plump, forest-fed animals is considered the choicest. Stall-fed venison is usually poor and coarse. The buck is generally best from May to September, and the doe from September to December. The animal should be at least five years old. Exceptions to the foregoing statements will be found in the article on the Reindeer.

The meat is improved by moderate hanging but care must be taken to see that it is not so old as to be stale. The vein in the neck should be bluish, not green or yellow, and there should be no offensive smell under the kidneys. Either of these defects indicates staleness. The purchaser's wisest policy is to buy it as fresh as possible. On receipt, it should be wiped dry, dusted with a floury cloth, and hung, cut-end up, in a cool, airy place. If to be kept for any considerable length of time, it is advisable to dust with powdered ginger instead of flour. If "musty" when purchased, it should be immediately washed with lukewarm water, or lukewarm milk and water, wiped dry, and dusted with powdered ginger.

The accompanying diagram illustrates the generally accepted method of cutting up a side of venison: 1—*Leg;* 2—*Loin;* 3 and 4—*Neck;* 5—*Breast;* 6—*Shoulder.*

A "haunch" of venison consists of the hindquarters—the leg and loin (Nos. 1 and 2). The best neckpiece is No. 4. The head and feet make excellent soup.



Venison cuts

VERJUICE, the juice of unripe fruits, especially grapes and crab-apples, either separate or together. It was in olden times considered a pleasant beverage but is now used only in cooking.

VERMICELLI. See the article on Macaroni.

VINEGAR, a much diluted acetic acid, combined generally with small quantities of other acids such as tartaric and succinic, and of esters and albumins. It is obtained by the conversion of the alcohol of a liquid—wine, cider, beer, etc.—into acids by a widely distributed, fermentative bacterium (*Mycoderma aceti*). In general manufacture, acetification is accomplished by slowly feeding the warm cider (or other liquid) into vat-chambers filled with vinegar-soured shavings.

Dessaux Fils

144,000 liters of wine for conversion into vinegar, in a single reservoir-train at Orléans, France

By United States standards, *Cider, or Apple, vinegar* is understood when the word "vinegar" is used without any qualification. It is normally brownish-yellow, with a distinctly agreeable odor suggestive of ripe apples.

Wine, or Grape, vinegar is made from either red or white wines. It is red when obtained from the former, and light yellow or golden if from the latter—which give the choicer products.

Not every housewife knows that sweetened vinegar—either wine or cider, especially the former—can be satisfactorily substituted for wine in any cooking receipt. Such substitution is time-honored and well-proved in practise, for it had been a custom among professional cooks long before the days of prohibition.

Malt, or Beer, vinegar is obtained from a fermented malt infusion or malt beverage—as beer. It is brownish and smells rather like beer. It is also known as "British vinegar" because it is the kind chiefly used in England, both for table purposes and for pickling.

The above three kinds are the best for table purposes. Their comparative merits is a matter of individual taste. Quality is subject both to age and to the particular flavor of each lot.

Other vinegars of commercial use include:

Sugar vinegar, made by the alcoholic and acetous fermentations of sugar or molasses.

Glucose vinegar, obtained from corn-sirup or corn-sugar (or other starch sirups or sugars).

Spirit vinegar, or "white vinegar," or "distilled vinegar," made from dilute alcohol. It is largely employed for pickling and is frequently colored and flavored for table use.

The sale of straight vinegar is supplemented by a considerable demand for specially flavored types, chief among them being tarragon vinegar, chili vinegar, shallot (eschalot) vinegar, and garlic vinegar.

There is a steadily increasing demand for bottled, or "package," vinegar put up by well-known firms, attributable in part to the fact that it is so very easy to adulterate vinegar dispensed in bulk.

If all conditions are just right—if the proper temperature is obtainable and can be kept at the proper point without substantial fluctuation—it is possible to make good vinegar at home by simple air-exposure of wine, beer, cider, perry, etc.—for the acetifying bacterium is present almost everywhere—but the chances are very much against a product that can be compared with that put up by a first-class manufacturer. The vinegar bacterium thus so ready to one's call, is colloquially known as "mother of vinegar."

Vinegar needs a good deal of care to keep it in the best condition. Exposure to the air, too strong light, or severe cold will cause it to deteriorate.

See also Fruit Vinegars and Raspberry Vinegar, and references in the articles on the Guava, Pineapple, and Tartaric Acid.

VITAMINS. See the general article on Food Values.

VOLATILE OILS. See *Essential Oils* in the article on Oil.

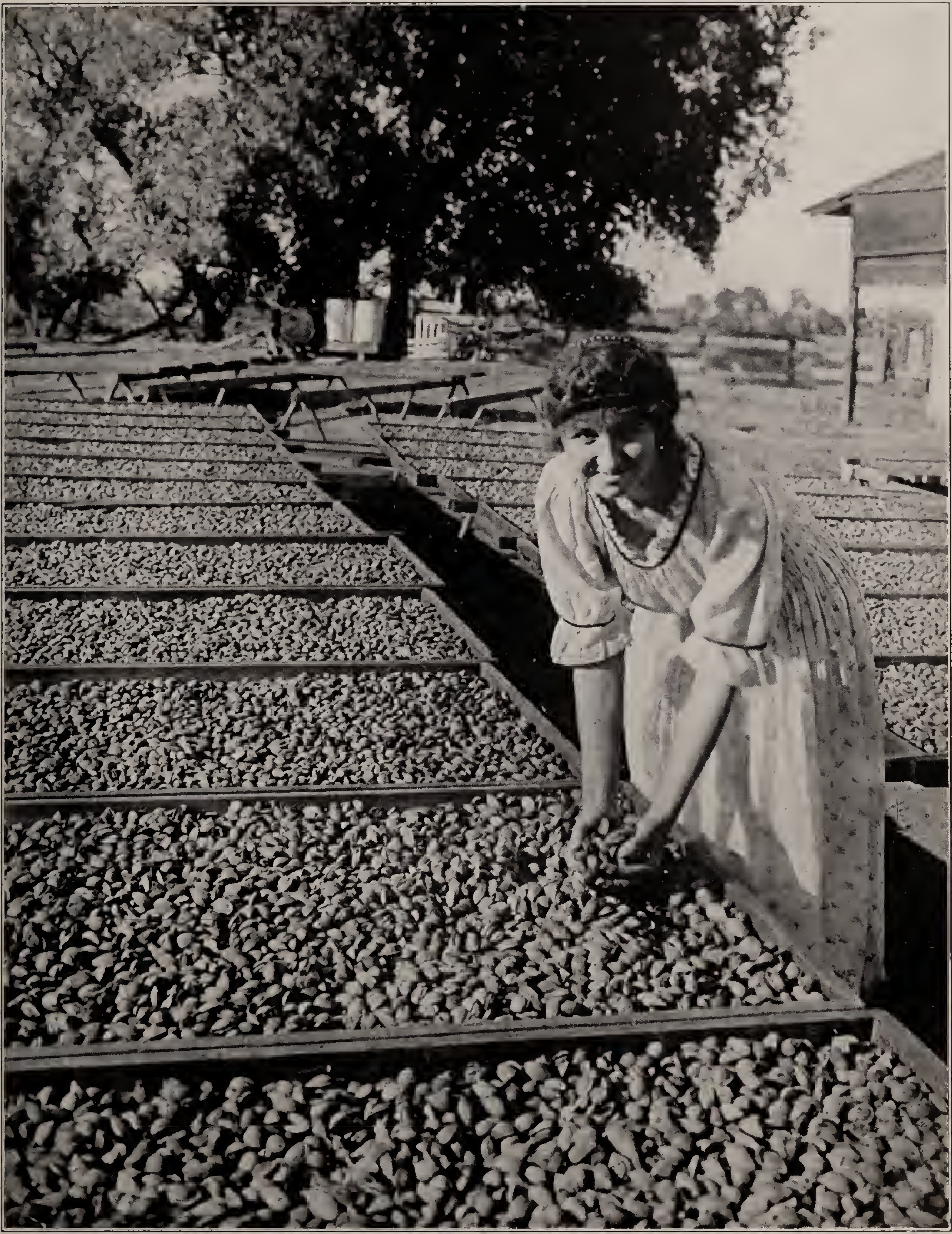
WALNUT, the nut of a fleshy-husked fruit borne by a large tree extensively cultivated in many parts of the world. Those always implied commercially by the simple title of "walnut" are of varieties of *Juglans regia,* indigenous to the mountainous regions of Greece and eastward to the Himalayas. Trees of this species were planted in California very early in its history and some of them thrived, but so insignificant was the crop, and so completely overshadowed by importations, chiefly by way of England, that until recently the type was distinguished from our native walnuts by the title of "English walnut," or, less frequently, "Persian walnut." During the last few decades there has come about a radical shift in conditions. The United States now grows large quantities of "English walnuts," California's orchards supplying more than half of our total consumption, and the change is recorded in the gradual dropping of the "English" qualification and the present practise of distinguishing the *native* nuts by qualified titles, as "black," etc.

In normal seasons, under general conditions, gathering the nuts consists chiefly of picking them up from the ground, the husks opening and permitting the nuts to drop when they are ripe. Those which do not are "poled" from the tree and husked. If the season has been an especially dry one, poling and husking may be necessary for a large percentage of the crop. The gathering is followed by various processes of cleaning, bleaching (if necessary to remove discolorations and give the desired light tan color), and grading. The packing most sought consists of medium-large nuts of uniform size with thin, smooth shells.

France furnishes about three-quarters of the walnuts imported (thirty million pounds or so a year), the bulk of the balance coming from China and Italy. The French are generally known as Grenobles, subdivided into two principal grades—pure "Mayettes" (the highest type of walnut) and "Commercials," the latter including Marlots, Cornes, Lots, Cahors, etc. The best Italian are the "Sorrentos."

The two chief species of native North-American walnuts are the Black — with thick, heavily ridged shells, generally round, sometimes rather flattened, and occasionally pointed—which offers nut-meat excellent in quality but held within woody receptacles so strong that nut-picks may be required to extract it; and the (generally) oblong "White," more commonly known as the Butternut (which see). The adjectives "black" and "white" refer to the comparatively dark and light colors of the barks of the trees—that of the Black walnut being brown and that of the White being grey. The nuts of both are dark-shelled when ripe.

The native walnuts are not—as edible nuts—able to compete on even terms with those of the *regia* species, but four of them—the Black, of the eastern and central states, mentioned in the preceding paragraph, and three others (two of California



Brown Bros.

Drying walnuts, California

and the third of southwestern states)—have proved of great importance to the nut-grower as they furnish the best stock on which to graft the *regia* scions. It is possible that the future may see such improvement of native varieties that commercial walnut-growing may be extended throughout a wider range of conditions than is possible with *regia* trees.

The green whole fruits, gathered before the enclosed nut-shells harden, make excellent pickles. The husks and the juice of the green fruits are also used in the manufacture of hair and other dyes, and the bruised leaves have an aromatic odor which drives away moths. In some parts of the world the trees are tapped for their sugar-yielding sap as we tap the sugar-maple.

See also the general article on Nuts and the color-page facing 346.

Walnut Oil, a delicate oil of nutty flavor, holds in Germany and Switzerland much of the place filled by olive oil in France and Italy. It is obtainable here, though it is not sold to any considerable extent.

WASABI, a Japanese plant whose root is grated for use like American horse-radish. It has an agreeably sharp taste. Efforts have been made to propagate the plant here, but have not met with much encouragement.

WATER. Water is in some form essential to all forms of animal and vegetable life. Its consumption in liberal quantities is especially necessary to civilized communities because of the generally dry character of the bulk of their diet. The human body requires an average of nearly 75% water, whereas bread, for example, has only 35% and bacon 20% liquid in its composition. The average individual would better his health if he drank a larger quantity—moderately cold—either with or between meals as best agrees with him.

The world's supply is obtained primarily from the ocean—the water being continuously drawn up into the atmosphere as vapor, leaving its salt behind, and later falling again condensed as rain or snow. Most of the rain and snow returns to the ocean, but part of it descends over the land surfaces of the earth to feed its rivers and lakes and thus becomes available for human use.

Ocean water averages about 3½% salinity—of which about three-fourths is common salt. The salt can be readily removed by distillation (following the example of natural evaporation) and ocean steamships thus customarily obtain their supply of fresh water.

Chemically pure water is a compound resulting from the combination, by volume, of two parts of hydrogen and one part of oxygen (by weight, the proportion is two parts of hydrogen to sixteen parts of oxygen) without the addition of any other substance, but such water is obtainable only by careful filtration and distillation. The most nearly pure water naturally obtainable is (1) rain-water in places remote from regular human habitation, taken after the rain has been falling sufficiently long to clear the atmosphere; and (2) that obtained by melting snow that has fallen in the polar regions. Nearly as close to perfection is the water in some mountain lakes, when resulting chiefly from melting snow and resting on impermeable rocks.

Such water—and all other in which the proportion of mineral matter is less than eight grains to the gallon—is known generally as "soft," in contrast to "hard" water, which implies a mineral content of eight to ten, and more, grains to the gallon. Water from rivers running over calcareous and clayey rocks often averages fifteen to twenty grains to the gallon.

The minerals in waters vary greatly. Those as a rule most heavily present are lime and magnesia salts. The organic matter is partly animal and partly vegetable.

Water becomes solid, or *ice,* at 32° Fahr. (0° Cent.), and, under normal air pressure, is converted into steam at 212° Fahr. (100° Cent.), or the ''boiling-point.'' Under rarefied air conditions, as at high elevations or commercially in partial vacuums, the boiling-point is reached at various lower degrees.

The mineral matter found in the average supply is not in any way detrimental to health. A little improves the flavor. The ''pure water'' that every community should provide is not necessarily *chemically* pure, but is water uncontaminated by sewage of any description or in any form, for such contamination is one of the most serious menaces to health.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY LIBRARY

Spring water is frequently regarded as the highest type of pure water because of its ordinarily bright and more or less sparkling appearance. This appearance is, however, generally the result of its hardness—i.e., of the mineral ingredients it has absorbed in its passage through the rocks. In cases where the mineral ingredients are in sufficiently large proportions to be of distinct, or supposed, medicinal value, the water is classed as a Mineral Water (which see).

Distilled water is ''ordinary water'' filtered, boiled in vacuum boilers to remove volatile organic matter, converted into steam in stills (see Distillation), and finally condensed and aerated (aeration removing the otherwise objectionably ''flat'' taste of the distilled product). If these processes are conducted with proper care, the water obtained is free both of salts and of all bacterial life. It must be remembered, however, that it remains pure only so long as it is kept from contact with the atmosphere, as in siphons or corked bottles.

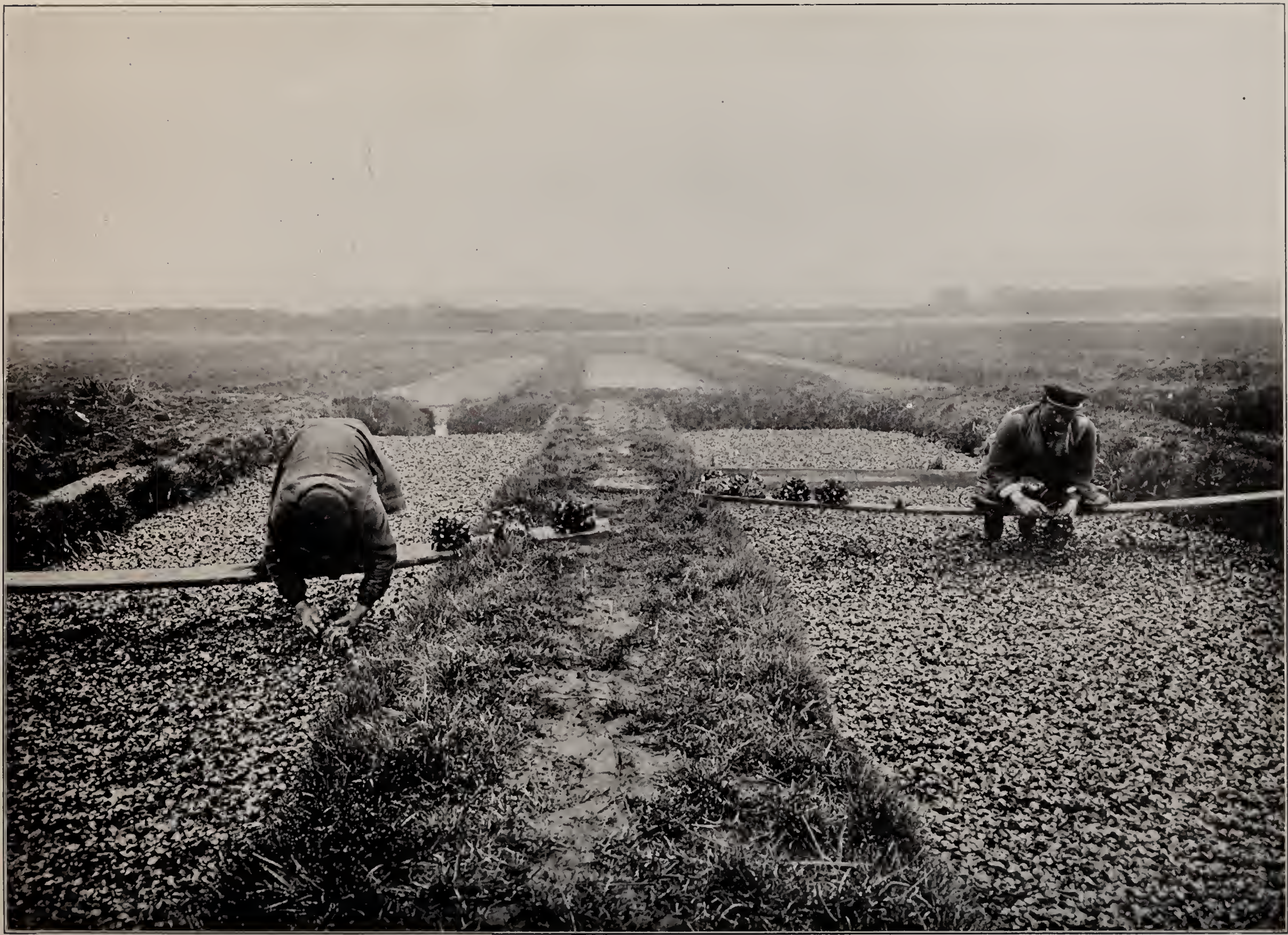
The same protection to health may, when necessary, be obtained in the household by thorough boiling (i.e., sterilization)—thus killing all organic matter. Similar care after boiling is also of course essential.

WATER-CHESTNUT, or Water-nut. There are many ''water-chestnuts'' used as food. Among the most important are the fruit-kernels of three species of floating aquatic plants of the genus *Trapa,* all native to Asia. One of them (known specifically as ''water-chestnut,'' and also as ''Jesuit's nut'') is widely distributed in southern Europe and is naturalized here in some parts. It can easily be grown in aquariums and pools. Its flowers are small and inconspicuous but the foliage is handsome. The nut is four-angled (three-angled in one or more varieties) and from one to two inches in maximum diameter. Boiled or roasted, it is floury and pleasing to the palate. The other two species yield the Chinese ''ling,'' marked by two long horns, extensively eaten fresh, dried, and canned (imported in considerable quantities for domestic consumption by Chinese residents here); and the Singhara-nut—with large, sweet kernels, popular among the natives of Ceylon and India.

A fourth ''water-chestnut'' widely eaten by Orientals is the brown-skinned bulb of a marshy, rush-like plant, a species of *Eleocharis.*

All of these, in meal form, are also added to soups, etc.

The ''water-chinkapin'' of the old-time Indians of the eastern United States is the acorn-like fruit of the ''American lotus'' (*Nelumbo lutea*).



Jacques Boyer, Paris

Watercress cultivation in France

WATERCRESS, a semi-aquatic plant of pungent, salty, and rather bitter flavor, which is especially popular as a spring salad. It grows wild in many parts, flourishing best in running waters with sandy bottoms. Under cultivation it is generally raised in wide, shallow ditches of slowly moving water. It is essential that the water supply be uncontaminated by sewage or other wastes. For household purposes it may be grown in the ordinary kitchen-garden if planted in trenches and copiously and regularly watered.

Watercress should be more freely marketed and consumed. Besides its excellence as a raw salad, it is very good boiled and minced as greens, particularly for service with broiled or roast meats, poultry, and game.

WATER-FOWL. See Ducks (wild).

WATER-LEMON, a name applied to the oval, yellowish fruits, of various sizes, borne by several tropical species of *Passiflora,* particularly to that of the *laurifolia,* known also as "Jamaica honeysuckle." It is agreeable in flavor but rather watery.

WATER-LILY ROOTS. The human consumption of the thick, starchy rootstocks of various water-lilies is interwoven with history both ancient and modern—particularly with that of the Orient. Most famous are the lotuses of Egypt—the indigenous Blue and White and the misnamed "Egyptian," or "sacred," lotus, a variety brought from southeastern Asia and cultivated along the Nile during the Roman period. The Chinamen of the twentieth century, as other Orientals, continue assiduously to seek the roots—their marketing dry and canned being an industry of some importance. Various water-lilies have also helped to eke out the food supply of our native Indians.

WATER-MAIZE, the seeds of the huge *Victoria regia* water-lily of the Amazon, highly esteemed by the Indians. They are dark colored — greenish or black — and about the size of an average pea. The name may conveniently be extended to all edible water-lily seeds—for example, those gathered from the large yellow water-lily, *Nymphæa polysepala,* of the northwest, particularly plentiful in the Klamath Marsh of southern Oregon. The Klamath Indians roast the seeds in open baskets, causing them to swell and crack open, to be eaten dry, or ground for bread or porridge.

WATERMELON. The watermelon is indigenous to Africa and in its original home it is as highly appreciated by natives and wild beasts as it is by the diversified populations of the other parts of the world which it has conquered—elephants and lions, as well as a host of smaller creatures, joining at every opportunity in practical demonstrations of their enjoyment of its refreshing succulence!

Up-to-date civilizations have most emphatically endorsed the verdict of the African forests and deserts. Many other melons with much more flavor are cultivated here in great numbers, and offered (generally) at moderate prices, but the watermelon distances them all in total harvest—despite the indictment that it possesses little more distinction than a crisp, highly colored flesh flavored with sweetened water!

The southern states are, as a group, the chief commercial growers, supplemented by important crops in the central states and California. The numerous varieties differ considerably in coloring, shape, and quality, but less attention is paid to such matters than in almost any other fruit. All that the average consumer desires is fair size and red (or pink) ripe flesh.

Brittle flesh with few fibers is a mark of quality. A good average weight is from twenty to thirty pounds. For consumption in the neighborhood of their growth, the thin-rind varieties are especially desirable. For general market purposes the thick-rind types are preferable, as they stand transportation better. There are several kinds distinguished by their bright yellow flesh, the flavor and other characteristics being practically the same.

The white inside of the rinds is in the West largely prepared as a sweet pickle, and Orientals esteem the seeds as a nut-like delicacy.

WEAKFISH, the popular name for a genus of excellent food and game fishes of the northern-Atlantic coast—also, though less abundantly, of the Gulf. They take their name from the extreme tenderness of their mouths. The most important is the Common weakfish, or "squeteague" (see the color-page opposite 484), a silvery creature with dark, wavy marks. Its market weight varies from as little as half a pound to as high as ten pounds—up to thirty pounds in extremely large specimens. Of the same general range, and of about equally high quality, but of smaller maximum size, is the Spotted weakfish, named for its round, black spots. It is particularly abundant off the Atlantic coast of our southern states. A valuable Pacific-coast member of the genus is the California white sea-bass (see Bass).

WELSH ONION, or Cibol, or Rock Onion, a widely grown plant whose hollow, dark-green or bluish-green leaves, of mild onion flavor, are employed for seasoning salads, etc. Each shoot is enlarged at the base and is covered with dry membrane (reddish, pink, or of other color) like the outer coat of an ordinary onion, but no distinct bulbs are formed. Welsh onions are also known as "scallions" in common with all other bulbless members of the onion group.

WELSH RABBIT, or "Rarebit," dry cheese, melted with cream or beer or ale, and poured over slices of hot toast. The cheese should be of the cheddar type, well aged. Seasoning and other ingredients, as sauces, are added according to individual tastes.

Many argumentative wars have been waged on the question of whether "rabbit" or "rarebit" is the correct word. Modern dictionaries give the preference to the former, but "rarebit" still has energetic defenders. The term is probably a jocular hit at the Welsh, as in New England a salt cod is styled a poor man's "turkey" and in Old England a "Norfolk capon" is a red herring.

WHALE MEAT, a food which has merit as a novelty and as a wholesome addition to the meat supply of the world when the flesh of land food-animals is scarce or rises abnormally high in cost. That of large whales is too tough-fibered for consumption unless minced fine before cooking, but parts of the carcasses of humpbacks and small finbacks (or "rorquals"), especially the former, are moderately tender and well-flavored. A single specimen will yield five or six tons of edible meat, the best cuts being from alongside the spine toward the tail. The raw meat looks like coarse beef. It makes good steak, but is better when prepared by longer processes—as pot-roast or braised or cut up and cooked in casserole. If promptly frozen (and thus held

WATERMELON
Greatly Reduced

American Museum of Natural History

A finback whale

until ready for use) its flavor also resembles beef. Otherwise it develops a fishy taste. In its early stages, this fishiness is pleasantly suggestive of salmon; if unchecked, it becomes over-strong. The flavor may be removed by immersing the raw meat in a solution of bicarbonate of soda, or by a preliminary parboiling with a little sliced onion, and then straining off the oil.

During the war, large quantities of hardened whale-fat were used in the manufacture of oleomargarin by the northern countries of Europe.

WHEAT (see the color-page opposite 558), the human food-grain preeminent in other than Asiatic countries. It owes its high position to the excellence of its flour for bread-making—it yields bread more generally acceptable than that of any other grain—bread that is attractive in appearance, particularly well leavened, and pleasantly mild in flavor. Its leavening quality is due to its comparatively large content of gliadin (see GLUTEN). Its composition is about 69% carbohydrates (chiefly starch in a form which is easily and efficiently assimilated), 11% protein, 1+% fat, 1.7% ash, 2.6% cellulose, and 14.5% water.

Wheat has been cultivated since the earliest ages—it was the main crop in ancient Egypt and Palestine and formed part of the food supply of the prehistoric Swiss cave-dwellers. To-day, the United States produces and consumes a greater quantity than any other country in the world. Russia in normal times stands next in the list of producers.

The plant is a slender grass of varying height, annual or biennial, flourishing in sub-tropical regions yet capable of enduring the unusually severe winters so often experienced in northern Europe and the northwestern part of this continent. It requires, however, a mean temperature of at least 55° Fahr. for three or four months of the year.

Owing to the different climates in which it is produced, the cultivated varieties are very numerous and new kinds are continually presenting themselves, many of which are held in high estimation in certain districts. The chief types are known as Soft, Semi-hard, Hard, and Durum (or "macaroni"), the last-named being the hardest of the hard wheats.

The hard wheats—the great grains of Minnesota and our other west-north-central states—are of varieties brought from the rich grain districts of the south and east of Russia. They are heavy with gluten and yield creamy-colored flour. The soft wheats (those chiefly grown in our other states) contain less gluten and give whiter flour (see article on FLOUR). Other classifications are into Bearded and Unbearded, Red and White, Spring and Winter, etc. Durum wheat—highly valued for its drought and rust resistance—is generally so heavily bearded that the seed-head looks much like barley. "Winter wheats" are those which are seeded in the fall and therefore carry a partly developed root-system through the winter.

The grain consists essentially of a starchy kernel—composed of minute cells containing the glutenous protein and the preponderant starch granules—wrapped in five coats, or layers, which constitute the bran. The three thin outside layers are called the "skin"; the fourth, known as the "testa," contains the greater part of the coloring matter of the bran. These four outer-coats together constitute about 5% of the weight of the whole grain. They consist chiefly of cellulose and mineral matter. The fifth inner, and thickest, coat (constituting about 8% of the weight of the grain) is known as the "cereal," or "aleurone," layer. It consists of cells full of protein. The varying proportions in which the bran is included in the flour represent the differences in Graham, or whole wheat, and other related flours and breads (see FLOUR and BREAD). The grain carries also a fatty germ but this does not ordinarily reach the consumer in either his flour or bread.

Because of its importance for food purposes, wheat has attained great prominence in the political and commercial worlds. In the former, it has held the reins of power, created parties, developed partizanship, and decided the issues of parliamentary and congressional strife. In the latter, it has proved an attractive source of speculation and an objective point for financial ambition. It has been the compeer of gold in the race for gain, and has given and removed fortunes in a day. Corners have been created and ruin forced almost in the twinkling of an eye by speculative battles for the control of its supply.

Rolled wheat is milled in much the same way as *Rolled oats* (see OATMEAL).

Cracked wheat corresponds to old-fashioned oatmeal.

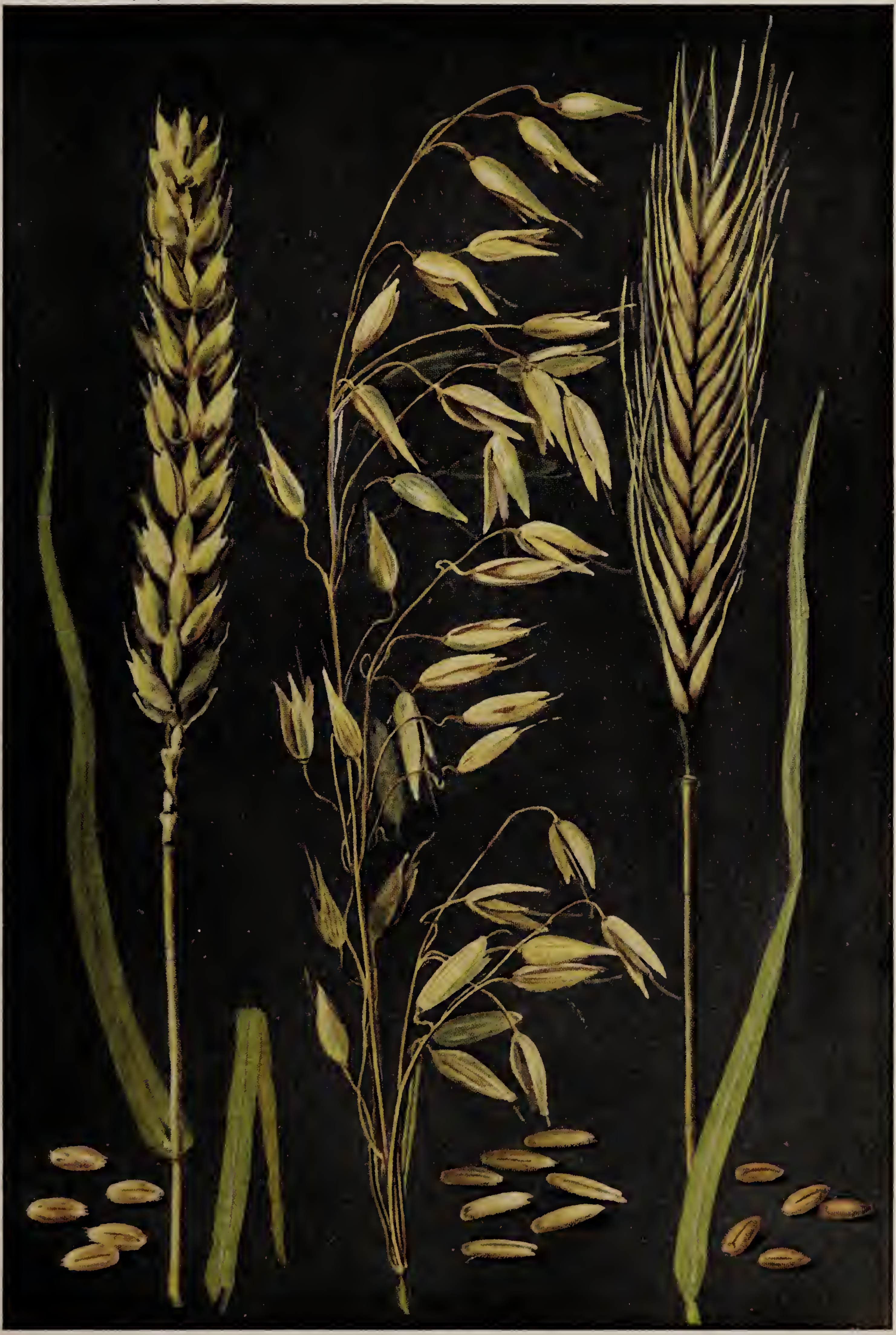
Puffed wheat is prepared in the same way as *Puffed rice* (see subhead at the end of the article on RICE).

WHEY, the product remaining after the removal of fat, casein, etc., from milk in cheese-making. It is a pale yellow liquid, consisting chiefly of water and milk-sugar. It is variously utilized—in the production of milk-sugar, in the making of whey cheese (see CHEESE), and for feeding pigs.

Buttermilk whey, flavored with mint or sage, is a refreshing drink.

WHITEBAIT, small, silvery-white fish, very popular in England and on the Continent, which are found in abundance in the Thames estuary and other British waters during the spring and summer, being considered at their best in July and the first half of August. They were formerly classed by some authorities as a separate species, *Clupea alba,* but they are in reality the young of various fishes—chiefly of

Color insert, The Encyclopedia of Food



WHEAT
A beardless variety

OATS

RYE

the herring and sprat. They are most esteemed when from two to three inches long, although sometimes served at a length of from four to five inches. They are usually fried crisp, and are so tender that both bones and skin are eaten with the flesh.

In similar manner, under different names, very small fish of various kinds are widely enjoyed in Germany, Italy, Japan, New Zealand, and elsewhere.

WHITEFISH. The Common whitefish (see the color-page facing 534), the most important of the genus *Ceregonus,* is a delicate-flavored fish, greenish above and with white sides, caught chiefly in the Great Lakes. It reaches an average weight of two to six pounds—up to above ten pounds in very large specimens.

Other valuable species include the Rocky Mountain whitefish of western North America (known locally by various other names), and the smaller Menominee whitefish (or round whitefish, or frost-fish, or blackback), of the lake districts—both of them bluish above and silvery on the sides.

WHITE SAPOTA, or Sapota Chico, a very thin-skinned, large-seeded, greenish-yellow Mexican fruit, cultivated also in California. It is about the size of an average large orange, and of much the appearance of a quince, borne by a large-crowned, stout-trunked tree. Its cream-colored pulp is soft, sweet, and decidedly pleasing, with sometimes a suggestion of bitterness. It is generally gathered when full sized but still hard and then held in a suitable place for complete ripening.

WHITING, a title applied in different localities to numerous different fishes. Four are listed under KINGFISH and a fifth under HAKE.

WHORTLEBERRY. See HUCKLEBERRY, and also reference to the "red whortleberry" in the article on the CRANBERRY.

WILD RICE, or Water-rice, or Indian Rice, or Water-oat, the seed of a tall, broad-leaved, aquatic grass, reaching eight or nine feet in height, widely distributed in shallow waters throughout the central and southern states and especially abundant in the Upper Mississippi Valley—there often covering a great stretch of land and water and giving it the appearance of an enormous barley-field. The seed has always been relished as a food by Indians and during the past few years has attracted national attention—principally directed to its propagation for the feeding of wild ducks and other waterfowl, but also to its harvesting as an addition to our table cereals. As marketed, it is of grain-style, rather long and thin, and chiefly greenish, rich in nutrition and, when properly prepared, with a peculiar, slightly smoky flavor which is very palatable. Difficulties of cultivation debar it from serious competition with any of our staple grains, but that does not detract from its merits for occasional service as a cereal, or with game or other roast meats, as dressing or otherwise. In northern Minnesota it is gathered by Indians in canoes paddled slowly through the rice-beds, the seeds being shaken into the bottoms of the canoes from the grass-heads pulled over and downward for the purpose. As the seeds do not all ripen at the same time, a "field" is gone over again and again at suitable intervals. Harvesting is followed by parching to dry the hulls, which are then easily separated from the grain.

Careful cooking is necessary to bring out the best qualities of wild rice. Overcooking and over-stirring must be avoided—or its light flakiness will be lost—and the boiled grain should be steamed dry. Butter, gravy, or other seasoning should be added by the diner—it should not be mixed in ahead.

WINE-PALM. See Coquito. Another palm bearing the title is the coyol, or Macaw-tree (*Acrocomia sclerocarpa*) of the American tropics. Its sap is drunk by the Indians, and its hard-shelled nuts (from a little less to a little more than an inch in diameter) contain flesh which is agreeably edible and yields a buttery, violet-scented oil.

Wintergreen

WINTER-CHERRY. See Ground-cherry.

WINTERGREEN FLAVOR, or Extract, employed in confectionery and medicinally, owes its title to its original source, the wintergreen-plant, a creeping shrub of the heath family, known botanically as *Gaultheria procumbens,* and locally in some sections as checkerberry, tea-berry, and partridge-berry, whose leaves yield the true wintergreen-oil, or oil of gaultheria. The leaves have also served locally as a substitute for tea (then known as "mountain tea," or "Canadian tea") and the scarlet berries are freely eaten.

The principal present source of so-called natural wintergreen-oil is the Sweet, or Black, birch, *Betula lenta,* the twigs and leaves of which yield the chemically identical oil of betula.

Mitchella repens, a plant of the madder family, is also known in some parts of the country as "wintergreen" but it contains no oil and has no relation to the wintergreen of the heath family. Its red (occasionally white) double berries—edible, though dry and tasteless—are reputed to possess medicinal virtue as both tonic and soothing. They are colloquially styled partridge-berry, squaw-berry, etc. Small fruiting plants are sold by florists during the winter months.

WOANDSU, a newly discovered food-plant, native to tropical Africa. It resembles the peanut in its manner of growth and furnishes a white flour, which, after cooking, has a pleasing chestnut flavor, and is of exceptionally high and well-balanced food value. The kernel is egg-shaped, and dark red, with black stripes and a white hilum.

WOODCOCK (see the color-page facing 242), one of the most popular of the smaller game-birds, found in many parts of eastern North America, from Canada to the Gulf. The female averages a little less than twelve inches in length and about a half-pound or so in weight; the male is somewhat smaller. Both are distinguished by long, straight, furrowed bills (happily designed for boring for their favorite diet of earth-worms), large dark eyes, short thick necks, compact rounded bodies, and short wings and legs. Their upper plumage is a varied grey, buff, brown, and black; their under-parts are reddish-brown. Both have dark flesh, rich in flavor. The Old World woodcock is a similar bird of larger size.

WOODRUFF, a small, white-flowering plant which grows freely both in this country and Europe and is extensively used for garden borders. When fresh, it has little scent, but the dried leaves possess a lasting perfume suggestive of new-mown hay. It is employed in various ways, particularly in Germany for flavoring drinks. Dried woodruff for this purpose is sold in tin boxes, generally under the title of *Waldmeister zur Bowle.*

The detached leaves are also placed in closets and drawers to repel insects.

WORCESTERSHIRE SAUCE. See the general article on Sauces.

YAM, the tuberous root of a climbing plant of the *Dioscorea—D. alata* including all the most important varieties of common cultivation. They resemble sweet-potatoes in general characteristics and are largely used as food in the West Indies and other tropical regions, and to a small extent in Florida and Louisiana. Big specimens frequently weigh thirty pounds or more and occasionally exceed 100 pounds and a length of seven or eight feet. The small roots are, however, usually the choicest—some of them represent both the most delicate flavor and the highest food value of all starchy vegetables. To bring out their full merits they should be very thoroughly boiled.

The *batatas* species, the "Chinese yam," is hardy in temperate climates and yields fleshy, club-style, palatable roots that may exceed three feet in length. It is, however, less desirable for cultivation because of its deep-growing habit.

Commercially unimportant but interesting horticulturally are the "air potatoes" of the *bulbifera* species, borne above ground fruit-style among the leaves of the vines. They are variable in shape (except that they are nearly always angular) and may weigh several pounds. They are good eating, resembling the ordinary potato in flesh and flavor. They should not be confused with the potato-shaped, bitter tubers of another variously placed vine also known as "air potato," or "giant yam vine."

Despite the southern cultivation of the true yam, the "yam" of southern markets is generally a large sweet-potato.

YAUPON, or Yopon, or Carolina Tea (*Ilex vomitoria,* or *I. Cassine*), a shrub or small tree of the holly genus, native to the coast line of the southern and southeastern states, whose leaves and twig branches were formerly used as tea and yielded the once famous "Black Drink" of the Creek and other Indians of a wide area of contiguous territory. The leaves are of holly style—evergreen, smooth, oval or oblong, evenly scalloped on the edges, and with small, rounded teeth. They contain about 1% of caffein and 7 or 8% of tannin. Infused in ordinary tea fashion, they yield very little flavor or body, but boiled (as they used to be) for half an hour or so, the product is a strong, dark, aromatic beverage, not unlike a very heavy infusion of coarse black tea, with a suggestion of Oolong in the aroma. Every year the Indians would travel hundreds of miles to the coast country to obtain a supply of leaves, marking their arrival by a grand Black Drink debauch—sitting around their kettles for two or three days at a stretch and continuously drinking vast quantities of the almost boiling decoction, with high confidence in the wholesome effects of its emetic, diuretic, and laxative action. Then returning home, each one carrying a bundle of twigs to be dried and roasted and kept in baskets for future use. The decoction was also at times converted into a frothy, yellowish liquid by brisk beating and stirring, and held an important place in tribal ceremonials.

YAUTIA, or Malanga, or Tanier, a tropical, stemless, long-leaved, milky vegetable-plant allied to the taro, widely grown in the tropics both for its young leaves, excellent as greens, and for the starchy cormels, or young "bulbs," of its root-system. The raw cormels of most varieties are acrid, but cooking dispels this and develops well-flavored and attractive eating quality. The flesh is generally white or creamy — sometimes pink, purple, or any one of many other colors. The yautias have been added to the list of southern crops, for they are productive under wet-land conditions which are prohibitive of other starch plants. Their food content varies with different types, the average being similar to that of the Irish potato except that the carbohydrate content is a little higher and the water percentage is a little lower. They are eaten in any way suitable for potatoes and their dried meal makes good "cakes."

YEAST, the popular title of those tiny fungi, or micro-organisms, belonging mainly to the *Saccharomyces,* which rapidly reproduce themselves when immersed in a sugar-solution of suitable temperature, and by their enzymes, or secretions, cause the fermentation of the liquid—i.e., the conversion of its sugar into carbon dioxide and alcohol. There are many species and varieties, of divers shapes—round, oval, etc.—but they are all unicellular and nearly transparent, except when great numbers are bulked together, and so small that singly they cannot be discerned by the naked eye. Reproduction is in nearly all varieties by budding. The mature plant, or cell, develops a bud which rapidly increases in size and detaches itself from the parent plant, to itself bud and develop another cell—and so on, indefinitely. The new cell frequently commences to bud before it detaches itself, and this may be more than once repeated, resulting often in the formation of clusters of several cells.

Yeast-plants are present everywhere. They flourish, as already noted, in foods containing sugary solutions in moderate amount, or substances convertible into sugar, but sugar itself is immune, except some moist varieties such as maple-sugar. Thus in the household they will speedily multiply in the jelly that is left exposed in a warm room and cause it to ferment, but they cannot grow in the common dry sugar nor in the heavily sugared jam standing at its side.

These "wild" yeast-cells must be kept out of food, for their uncontrolled, unregulated growth often spoils it by producing undesired fermentation. The cultivated yeast-plant is, on the other hand, a valuable assistant in the preparation of human food, one of its most familiar uses being the raising of Bread (which see). Another good example is found in the home-manufacture of Root Beer.

It is the wild yeast on grape and apple skins which produces wine and cider, by causing fermentation of the sugar of the fruit juice, but with these exceptions nearly all the yeast-plants utilized are those of carefully selected, specially cultivated varieties. The distillation of grain-alcohol is always preceded by a fermentative process of which cultivated yeast is the prime agent. Bread dough, if left to stand in a warm room, will generally ''rise,'' as a result of the activity of the wild yeast which has fallen in it, but the results are uncertain and irregular compared with those obtained by means of cultivated yeast.

The cells grow most freely between 70° and 95° Fahr., so the temperature of a good refrigerator will prevent propagation. Food in which wild yeast has begun to grow, but in which it has not progressed sufficiently to do considerable damage, can be saved by boiling, or its equivalent heat in other forms of cooking. Heat is the only effective destroyer. It must be remembered, however, that unless the food thus freed is well covered or placed in a refrigerator, it is just as liable as before to suffer fermentation from new wild yeast getting into it.

Cultivated yeast consists of selected wild cells, propagated in appropriate food material. Different kinds are grown for special purposes—a variety which may be very good for beer, for example, may not be desirable in color or flavor for bread.

Commercial *compressed yeast* is obtained by sowing selected cells in vats filled with a warm, sweet, filtered mash prepared by malt-conversion of starch. As the cells multiply, they collect in a thick, yellowish, frothy coating on the surface. This is skimmed off from time to time, washed, freed from part of the water, and made into the soft, rather soggy cakes sold in such enormous quantities for both household and bakers' use. When fresh, nearly all the cells will be found alive and vigorous—there are millions of them in each cake, mixed with starch, etc.—but after two or three days many of them die and the yeast will show less and less vigor. In time, bacteria, another class of micro-organism, will develop in the cake and spoil its flavor. It is consequently best to use compressed yeast while perfectly fresh. If this is impossible, its life may be prolonged by placing the cakes in cold water and setting in the ice chest. They should never be exposed to temperature below freezing point.

Dried yeast, in cakes or powder, is compressed yeast dried at low heat. The process kills some of the plants and thus lessens the vigor of the yeast, but a good many are left in a dormant condition and it holds the advantage that it will, under suitable conditions, keep for several weeks, and sometimes months. It must, however, be handled with care, its vitality being destroyed or lessened by falls and bruises, and by excessive heat or cold. As the live cells of dried yeast begin growing again when moistened, it is a good plan to put the cake or powder in a little sweetened warm water shortly before using.

Both compressed and dried yeasts vary in purity and hence in value, so that it is advisable to purchase from concerns of recognized experience and integrity.

Next after compressed yeast in strength and utility for bread-making, is *brewer's yeast,* the brownish, frothy top-yeast from the fermenting vats of ale or beer. It answers the same purpose, but is not so vigorous, and sometimes gives a slightly bitter flavor.

Beer yeast is also used to a limited extent by physicians. It makes an appetizing ''bouillon,'' somewhat resembling beef tea, and is sometimes prescribed as a stimulant in hospital practise. It was in former years frequently substituted for meat extract or used to adulterate it.

Recent experiments in the search for definite knowledge concerning vitamins have revived the old-time use of yeast as a curative and recuperative agent. It has been found that fresh yeast (including fresh compressed yeast) contains a plentiful supply of the B-vitamin (see further on this subject in the general article on Food Values).

YELLOWTAIL, a title applied in various parts to many different fishes. The best-known is the "California yellowtail," a beautiful food and game fish of the "Amber" genus (*Seriola*), found plentifully along the California coast, especially about Coronado Island. It attains a maximum length of about three feet.

YOGHOORT, or Yogurt, the Turkish name of a fermented milk of cows, goats, or other ruminants, widely consumed in the Balkans, Turkey, Armenia, and Persia, fresh milk being very seldom drunk by the native inhabitants. It is generally boiled before setting to ferment and is sometimes evaporated to half its volume, the thick fermented product being then eaten (with dates or bread, etc.) instead of drunk. It is used as a specific in many forms of sickness, the patient being restricted to its consumption.

It differs from KUMISS (which see) in containing a much greater percentage of lactic acid, in having a very soft curd which is exceedingly slow to separate, and in containing little, if any, alcohol. The high acid and distinctive curd content are due to the activity of members of the Bulgaricus type of lactic acid bacteria.

Yoghoort is the original model of the majority of our commercial fermented milks. See *Fermented milk* in the general article on MILK.

YOPON. See under the title of YAUPON.

ZAMIA. See COONTIE.

ZAPOTE, a title frequently applied to the SAPODILLA but better reserved for the MAMMEE SAPOTA (which see).

ZOOLAK, a fermented milk of the Yoghoort type. See *Fermented milk* in the article on MILK, and also YOGHOORT.

ZWIEBACH, or Zwieback, a bread or cake product whose name carries in German the significance of "twice cooked" that "biscuit" does in French. That put on the market by large manufacturers is made from a special dough, raised by yeast like ordinary bread but containing more milk than water and frequently including also eggs and butter—and, for sweetened varieties, sugar and a little flavoring. The dough is molded in shapes and baked; then left to cool for several hours, sliced, and re-baked dry. The industry originated in Germany, and in that country one finds a great diversity of styles—among them Hamburg zwiebach, like round rolls cut in two across; Vienna zwiebach, in long ovals or finger-shaped; Hungarian zwiebach, finger-shaped, wider at each end than in the middle, covered with icing and baked brown; Saxon zwiebach, finger-shaped, sliced; anise zwiebach; Hamburg children's zwiebach, for children and invalids; gluten zwiebach; and malted zwiebach.

Supplementing the zwiebach baked from special doughs is a large quantity made from ordinary bread, either sweetened or unsweetened, cut in slices and slowly baked until thoroughly crisp. For ordinary unsweetened use, it is best prepared from Vienna bread, but almost any kind of baker's bread will answer the purpose. Home-made bread will seldom give satisfactory results.

Zwiebach is eaten in place of cake or bread and is also sometimes used for cooking. It is best consumed fresh, but if held in a cool, dry place it can be kept for some time by occasional additional toasting or baking to remove any moisture attracted.

APPENDIX

PAGE

DICTIONARY OF FOOD NAMES IN SIX LANGUAGES:
English, French, German, Italian, Spanish, and Swedish 567

DICTIONNAIRE FRANÇAIS-ANGLAIS 577

WÖRTERBUCH DEUTSCH-ENGLISCHES 580

DIZIONARIO ITALIANO-INGLESE 583

DICCIONARIO ESPAÑOL INGLÉS 586

SVENSK-ENGELSK ORDBOK 589

CULINARY AND BILL-OF-FARE TERMS 592

DICTIONARY OF FOOD NAMES IN SIX LANGUAGES

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
ALLIGATOR-PEAR	See *Avocado*				
ALLSPICE	Piment de la Jamaïque	Nelkenpfeffer	Coccola di pimento	Guindilla (pimiento de Indias)	Kryddpeppar
ALMONDS	Amandes	Mandeln	Mandorle	Almendras	Mandel
ANCHOVIES	Anchois	Anschovies	Acciughe	Anchoas	Ansjovis
ANISE	Anis	Anis	Anice	Anís	Anis
APPLES	Pommes	Äpfel	Mele	Manzanas	Äpplen
Cooking apples	Pommes à cuire	Kochäpfel	Mele da cuocere	Manzanas de cocinar	Matäpplen
Eating apples	Pommes à couteau	Tafeläpfel	Mele da mangiare	Manzanas de comer	Dessertäpplen
Dried apples	Pommes tapées	Getrocknete Äpfel	Mele secche	Manzanas secas	Torkade äpplen
APRICOTS	Abricots	Aprikosen	Albicocche	Albaricoques	Aprikoser
ARROWROOT	Arrow-root	Pfeilwurz	Arrowroot	Arrurruz	Arrowrotmjöl
ARTICHOKES	Artichauts	Artischocken	Carciofi	Alcachofas	Kronärtskockor
Artichoke bottoms	Fonds (*or* culs) d'artichauts	Artischockenböden	Fondi (*or* torsi) di carciofo	Corazones de alcachofa	Kronärtskock bottnar
ASPARAGUS	Asperges	Spargel	Asparagi	Espárragos	Sparris
Green asparagus	Asperges vertes	Grüner Spargel	Asparagi verdi	Espárragos verdes	Grön sparris
White asparagus	Asperges blanches	Weisser Spargel	Asparagi bianchi	Espárragos blancos	Hvit sparris
Asparagus tips	Pointes d'asperge	Spargelköpfe	Punte d'asparagi	Puntas de espárrago	Sparris toppar
AVOCADO	Avocat	Avocado-Birne	Pera avvocato	Aguacate	Alligatorpäron
BACON	Lard	Speck	Lardo	Tocino	Rökt fläsk
BAKING POWDER	Levure en poudre	Backpulver	Polvere crescente	Levadura en polvo	Jästpulver
BANANAS	Bananes	Bananen	Banani	Bananas	Bananer
BARLEY	Orge	Gerste	Orzo	Cebada	Korngryn
BEANS (Kidney-beans)	Haricots	Welsche Bohnen	Fagiuoli	Frijoles. Habichuelas. Judías.	Turska-bönor.
Lima beans	Haricots de Lima	Lima-Bohnen	Fagiuoli di Lima	Habas	Lima-bönor Bond-bönor
Navy beans	Haricots blancs secs	Getrocknete Bohnen	Fagiuoli secchi	Judías blancas secas	Hvita bönor
String-beans	Haricots verts	Grüne Bohnen	Fagiuolini	Habichuelas verdes	Skärbönor
Wax beans	Haricots à cosse jaune	Wachs-Bohnen	Fagiuolini gialli	Judías de vaina amarilla	Vaxbönor
Young green beans	Flageolets	Grüne Bohnen-Kerne	Fagiuoli giovani	Judías tiernas	Gröna bönor
BEEF	Boeuf	Rindfleisch	Manzo	Carne de vaca	Oxkött
Corned beef	Boeuf salé	Gepökeltes Rindfleisch	Manzo salato	Cecina	Salt oxkött
Dried beef	Boeuf boucané	Getrocknetes Rindfleisch	Manzo seccato	Carne seca de vaca	Torkad oxkött
Roast beef	Boeuf rôti. Rosbif.	Rinderbraten	Rostbif. Manzo arrosto	Rosbif	Oxstek. Rostbiff
Spiced beef	Boeuf épicé	Gewürztes Rindfleisch	Manzo aromatico	Carne de vaca condimentada	Kryddat oxkött
BEEF EXTRACT	See *Meat Extract*				
BEEFSTEAK.	See *Steak*				
BEETROOTS	Betteraves	Runkelrüben	Barbabietole	Remolachas	Betor
BERRIES	Baies	Beeren	Bacche	Bayas	Bär
BISCUITS	Biscuits	Zwieback. Biskuit.	Biscotti Biscottini	Galletas Bizcochos	Kex. Skorpor
BLACKBERRIES	Mûres de haie	Brombeeren	More di rovo	Zarzamora	Björnbär

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
BLUEBERRIES.	See *Huckleberries*				
BONE	Os	Knochen	Osso	Hueso	Ben
BRAINS	Cervelle	Gehirn	Cervella	Sesos	Hjärna
BRAWN.	See *Head-cheese*				
BRAZIL-NUTS	Noix du Brésil	Paranüsse	Noci del Brasile	Nueces del Brasil	Brasilnötter
BREAD	Pain	Brot	Pane	Pan	Bröd
Brown bread (or Graham bread)	Pain bis	Schwarzbrot (Weizen)	Pane bruno	Acemita	Groft bröd
Home-made bread	Pain de ménage	Hausbrot. Selbstgebackenes Brot	Pane casalingo	Pan casero. Pan bazo	Hembakadt bröd
New bread	Pain tendre	Frisches Brot	Pane fresco	Pan tierno	Färskt bröd
Rye bread	Pain de seigle	Roggenbrot	Pane di segala	Pan de centeno	Rågbröd
White bread	Pain blanc	Weissbrot	Pane bianco	Pan blanco	Hvetebröd
BREAST (of a bird or lamb)	Poitrine	Brust	Petto	Pechuga (*of birds*) Pecho (*of animals*)	Bröst (*of birds*) Bringa (*of lamb*)
BREAST (brisket)	Brisquet	Bruststück	Petto	Pecho	Bringa
BRINE	Marinade	Salzwasser. Lake	Salmoja	Salmuera	Saltlake. Saltvatten
BRISKET.	See *Breast (brisket)*				
BROCCOLI	Brocoli	Brokoli. Spargelkohl	Broccoli	Bróculi. Brécol	Sparriskål
BROTH	Bouillon	Fleischbrühe	Brodo	Caldo	Kraftsoppa
BRUSSELS SPROUTS	Choux de Bruxelles	Rosenkohl	Broccoli di Bruselle	Repollitos de Bruselas	Brysselkål
BUCKWHEAT	Sarazin	Buchweizen	Saggina	Trigo sarraceno	Bohvete
BUTTER	Beurre	Butter	Burro	Manteca de vaca Mantequilla	Smör
Cooking butter	Beurre de cuisine	Kochbutter	Burro per cuocere	Manteca de vaca para cocinar	Matsmör
Salt butter	Beurre salé	Gesalzene Butter	Burro salato	Manteca de vaca salada	Salt smör
BUTTERMILK	Lait de beurre	Buttermilch	Siero di latte	Suero de leche	Kärnmjölk
CABBAGE	Chou	Kohl. Kraut	Cavolo	Col	Hvitkål
CAKE	Gâteau	Kuchen	Focaccia	Pastel	Kaka
CALF'S BRAINS	Cervelle de veau	Kalbshirn	Cervella di vitello	Sesos de ternera	Kalfhjärna
CALF'S HEAD	Tête de veau	Kalbskopf	Testa di vitello	Cabeza de ternera	Kalfhufvud
CALF'S LIVER	Foie de veau	Kalbsleber	Fegato di vitello	Hígado de ternera	Kalflefver
CANDY	Bonbons Sucreries	Zuckerwerk Bonbons	Confetti Dolci. Chicche	Confites-dulces	Karameller. Konfekt (*fancy*)
CANTALOUPE	Cantaloup	Kantalupe Bisam Melone	Meloncini Mellone muschiato.	Cantalú (melón)	Kantaloup-melon
CAPERS	Câpres	Kapern	Capperi	Alcaparras	Kapris
CAPON	Chapon	Kapaun	Cappone	Capón	Kapun
CARAWAY-SEED	Cumin des prés	Kümmelsame	Seme di carvi	Alcaravea	Kummin
CARBONATE OF SODA.	See *Soda*				
CARBONATED WATERS	Eaux gazeuses	Kohlensäurehaltige Wasser	Acque gasose	Aguas gaseosas	Sodavatten
CARDAMOM	Cardamome	Kardamom	Cardamomo	Cardamomo	Kardemumma
CAROB-BEAN	Caroube	Johannisbrot	Carruba	Algarroba	Johannesbröd
CARROTS	Carottes	Mohrrüben Karotten	Carote	Zanahorias	Morötter
CASSIA (bark)	Casse aromatique	Kanehl	Cassia (corteccia)	Casia (corteza)	Kassiabark
CAULIFLOWER	Choufleur	Blumenkohl	Cavolo fiore	Coliflor	Blomkål
CAVIAR	Caviar	Kaviar	Caviale	Caviar	Kaviar
CELERY	Céleri	Sellerie	Sedano	Apio	Celleri
CHEESE	Fromage	Käse	Formaggio	Queso	Ost
Cream cheese	Fromage à la crème	Rahmkäse	Formaggio di crema. Formaggio grasso	Queso fresco	Gräddost
Grated cheese	Fromage rapé	Geriebener Käse	Formaggio grattato	Queso rallado	Rifven ost
CHEESE CAKE	Talmouse	Käsekuchen	Focaccia di formaggio	Quesadilla	Ostkaka
CHERRIES	Cerises	Kirschen	Ciliegie	Cerezas	Körsbär
CHESTNUTS	Marrons	Kastanien Maronen	Castagne	Castañas	Kastanjer

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
CHICKEN	Poulet	Huhn	Pollo	Pollo	Unghöns
Roasting chicken	Poulet à rôtir	Brathuhn	Pollo per arrosto	Pollo para asar	Unghöns för Stekning
Spring chicken	Poulet de grain	Junges Huhn	Galletto Pollastrino	Pollo tierno	Kyckling
CHICORY	Chicorée	Zichorie	Cicoria	Achicoria	Cikoria
CHILIES	Poivrons de Guinée	Cayennepfeffer	Pepe di Guinea Peperoni	Chiles. Ají	Spansk peppar
CHOCOLATE	Chocolat	Schokolade	Cioccolata	Chocolate	Chokolad
CHOPS	Côtelettes	Rippchen	Costolette	Chuletas	Kotletter
CIDER	Cidre	Apfelwein	Sidro	Sidra	Cider. Äppelvin
CINNAMON	Cannelle	Zimmt	Cannella	Canela	Kanel
CITRON PEEL (candied)	Cédrat confit	Citronat. Sukkade.	Cedrato candito	Corteza de limón confitada	Kanderat citronskal. ''Succat''
CLAMS (hard)	Lucines orangées	Venusmuscheln	Pettini (duri)	Almejas (duras)	Venus musslor
Soft clams	Lucines papillons	Weichmuscheln	Pettini (soffici)	Almejas (suaves)	Tråg musslor
CLOVES	Girofles	Gewürznelken	Garofani	Clavos de especia	Kryddnejlikor
COCOA	Cacao	Kakao	Cacao	Cacao	Kakao
COCONUT	Noix de coco	Kokosnuss	Noce di cocco	Cocos	Kokosnöt
CODFISH	Morue. Cabillaud	Kabeljau	Baccalà	Bacalao	Torsk. Kabiljo
Dried cod	Morue sèche	Stockfisch	Baccalà secco	Bacalao seco	Klippfisk. Stockfisk. Torkad kabiljo
Salt cod	Morue salée	Laberdan	Baccalà salato	Bacalao salado	Saltat kabiljo
COFFEE	Café	Kaffee	Caffé	Café	Kaffe
Whole coffee	Café en grains	Kaffeebohnen	Caffé in grani	Café en granos	Kaffebönor
Ground coffee	Café moulu. Café en poudre	Gemahlener Kaffee	Caffé macinato	Café molido	Malet kaffe
Roasted coffee	Café grillé	Gebrannter Kaffee	Caffé tostato	Café tostado	Brändt (*or* Rostadt) kaffe
COLE SLAW	Salade de chou	Kohlsalat	Insalata di cavolo.	Ensalada de col	Hvitkål sallat
CONDENSED MILK	Lait concentré	Condensirte Milch.	Latte condensato	Leche condensada	Kondenserad mjölk
CORIANDER	Coriandre	Koriander	Coriandolo	Culantro	Koriander
CORN (Indian)	Maïs	Mais	Grano saraceno	Maíz	Majs
Cornmeal	Farine de maïs	Maismehl	Farina saracena	Harina de maíz	Majsmjöl
Cornstarch	Fécule de maïs	Kornstärke Maisstärke	Amido di grano	Almidón de maíz	Majsstärkelse
CRAB	Crabe	Krabbe	Granchio	Cangrejo	Krabba
Soft-shell crab	Crabe mou	Weichschalige Krabbe	Granchio a guscio molle	Cangrejo blando	Krabba med mjukt skal
CRAB-APPLES	Pommes sauvages	Holzäpfel	Mele selvatiche	Manzanas silvestres	Vildäpplen
CRACKERS.	See *Biscuits*				
CRANBERRIES	Airelles rouges	Preisselbeeren	Bacche di mortella.	Arándanos rojos	Tranbär
CRAYFISH	Écrevisses	Flusskrebs	Gambero d'acqua dolce	Langostines	Kräftor. Flodkräftor
CREAM (of milk)	Crème	Rahm. Sahne	Crema	Crema. Nata	Grädde
CRESS	Cresson	Kresse	Crescione	Mastuerzo	Krasse
CUCUMBER	Concombre	Gurke	Cetriuolo	Pepino. Cohombro.	Gurka
Pickled cucumbers	Concombres confits	Eingemachte Gurken Essig-Gurken	Cetriuoli sotto aceto	Pepinos encurtidos	Ättiksgurkor. Saltgurkor Syltgurkor (*sweet pickled*) Inlagda gurkor (*Spiced pickled*)
CURRANTS (fresh)	Groseilles	Johannisbeeren	Ribes	Grosellas (frescas)	Vinbär
Currants (dried)	Raisins de Corinthe	Korinthen	Uva passa di Corinto	Pasas de Corinto	Korinter
CUTLET	Côtelette	Rippchen Kotelett	Costoletta	Chuletas	Kotlett
DANDELION	Dent-de-lion	Löwenzahn	Macerone	Diente de león	Maskros
DATES (fruit)	Dattes	Datteln	Datteri	Dátiles	Dadlar
DESSERT	Dessert	Nachtisch Dessert	Pospasto. Dessert. Frutta (*fruit*)	Postres	Dessert
DILL PICKLES	Concombres confits à l'aneth	Dillgurken	Cetriuoli sotto aneto	Encurtidos con eneldo	Dillgurkor
DUCK	Canard	Ente	Anitra	Pato	And
Wild duck	Canard sauvage	Wildente	Anitra selvatica	Pato silvestre	Vildand

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
EEL	Anguille	Aal	Anguilla	Anguila	Ål
EGGS	Œufs	Eier	Uova	Huevos	Ägg
Whites of eggs	Blancs d'œuf	Eiweiss	Bianchi d'uovo Albumi	Clara de huevo	Ägghvitor
Yolks	Jaunes d'œuf	Eigelb	Tuorli	Yemas (de huevo)	Äggulor
EGGPLANT	Aubergine	Eierpflanze	Melanzana	Berenjena	Äggplanta
ENDIVE	Endive	Endivien	Indivia	Endibia	Endivia
ESCHALOT	See *Shallot*				
EXTRACT	Extrait	Extrakt	Essenza. Estratto	Extracto	Extrakt
FARINA					
1—(of ground corn)	Farine (de maïs)	Maisgries	Farina saracena	Harina de maíz	Majsmjöl
2—(of wheat middlings)	Semoule	Weizengries	Semolino	Sémola	Semolinagryn
FAT	Graisse	Fett	Grasso	Grasa. Gordura	Fett
FIGS	Figues	Feigen	Fichi	Higos	Fikon
FILBERTS	Avelines	Lambertsnüsse	Nocciuole Avellane	Avellanas	Filbertsnötter
FINNAN HADDIE.	See *Haddock (Smoked)*				
FISH	Poisson	Fisch	Pesce	Pescado	Fisk
Fresh-water fish	Poisson d'eau douce	Süsswasserfisch	Pesce d'acqua dolce	Pescado de agua dulce	Insjöfisk
Salt-water fish	Poisson de mer	Meerfisch. Salzwasserfisch	Pesce di mare	Pescado de mar	Hafsfisk
FLOUR (wheat)	Farine (de froment)	Mehl	Farina (di frumento)	Harina de trigo	Fint mjöl
FOREQUARTER	Quartier de devant	Vorderviertel	Quarto davanti	Cuarto delantero	Framfjärding
FOWL.	See *Chicken*				
FROGS' LEGS	Cuisses de grenouilles	Froschschenkel	Gambe di ranocchie	Patas de rana	Grodben
FROSTING (for cakes).	See *Icing*				
FRUIT	Fruit	Obst. Frucht	Frutta	Frutas	Frukt
Candied fruit	Fruits glacés	Kandierte Frucht	Frutta candita	Frutas confitadas	Kanderad frukt
Dried fruit	Fruits secs	Getrocknete Frucht	Frutta secca	Frutas secas	Torkad frukt
GAME (birds and animals)	Gibier	Wildbret (*animals*) Wildgeflügel (*birds*)	Selvaggiume	Caza	Vildt
GARLIC	Ail	Knoblauch	Aglio	Ajo	Hvitlök
GARNISHING	Garniture	Garnierung	Guarnizione	Aderezo	Garnering
GELATIN	Gélatine	Gelatine	Gelatina	Gelatina	Gelatin
GHERKINS	Cornichons	Kleine Essiggurken	Cetriuolini (all'aceto)	Pepinillos	Vesterås gurkor
GIBLETS	Abatis	Hühnerklein	Frattaglie	Menudillos de aves	Fågelkrås. Gåskrås
GINGER	Gingembre	Ingwer	Zenzero	Jengibre	Ingefära
Ginger ale	Boisson au gingembre	Ingwer-Ale	Birra di zenzero	Cerveza de jengibre	(Ingefärs) Sockerdrika
Gingerbread	Pain d'épice	Pfefferkuchen	Pan pepato	Pan de jengibre	Pepparkaka
GIZZARD	Gésier	Magen	Ventriglio Ventriccio	Molleja de ave	Kråfva
GOOSE	Oie	Gans	Oca	Ganso	Gås
Goose liver	Foie gras	Gänseleber	Fegato d'oca	Hígado de ganso	Gåslefver
Gosling (or green goose)	Oison	Junge Gans	Papero	Ansarón	Gåsunge
GOOSEBERRIES	Groseilles à maquereau	Stachelbeeren	Ribes uva spina Uva crespina	Grosellas (uva espina)	Krusbär
GRAPES	Raisins	Trauben	Uva	Uvas	Vindrufvor
Grape juice	Moût	Traubensaft	Sugo d'uva	Zumo de uvas	Drufsaft
GRAPEFRUIT	Pamplemousse	Pompelmuse	Pampelimossa	Toronja	Grape frukt
GREENS	Légumes verts	Grüne Gemüse Grünzeug	Verdura	Verdura	Grönsaker
GROUSE	Tétras	Waldhuhn Moor-Huhn	Gallo di montagna	Guaco	Ripa

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
GUAVA	Goyave	Guava	Guajava	Guayaba	Guavafrukt
GUINEA-FOWL	Pintade	Perlhuhn	Gallina di faraone.	Pintada	Perlhöna
GUMBO.	See *Okra*				
HADDOCK	Égrefin	Schellfisch	Merluzzo	Róbalo	Kolja
Smoked haddock ("Finnan Haddie")	Égrefin fumé	Geräucherter Schellfisch	Merluzzo fumato	Róbalo ahumado	Rökt kolja
HAM	Jambon	Schinken	Giambone Prosciutto	Jamón	Skinka. Rökt skinka
HARD TACK	Biscuit de mer	Schiffszwieback	Galletta	Galleta de munición	Skepps-skorpor
HARE	Lièvre	Hase	Lepre	Liebre	Hare
HAUNCH	Cimier	Hüfte. Schenkel	Anca	Anca	Lårstycke
HAZEL-NUTS	Avelines	Haselnüsse	Nocciuole	Avellanas	Hasselnötte
HEAD	Tête	Kopf	Testa	Cabeza	Hufvud
HEAD-CHEESE	Fromage de porc.	Schwartenmagen. Presskopf	Formaggio fatto colla testa di porco	Queso de cerdo	Pressylta. Sylta
HEART	Cœur	Herz	Cuore	Corazón	Hjärta
HEN	Poule	Huhn	Gallina	Gallina	Höna
HERBS	Herbes	Kräuter	Erbaggio	Hierbas	Örter
Fine herbs. Sweet herbs. Aromatic herbs	Fines herbes Herbes aromatiques. Aromates	Feine Kräuter Gewürzkräuter Küchenkräuter	Erbe fini Erbe aromatiche.	Hierbas finas Hierbas aromáticas	Kryddväxter
HERRING	Hareng	Hering	Aringa	Arenque	Sill
Kippered (or Smoked) herring	Hareng saur	Geräucherter Hering	Aringa affumicata.	Arenque ahumado.	Rökt sill
Pickled herring	Hareng mariné	Marinierter Hering.	Aringa marinata	Arenque en escabeche	Inlagd sill
Salt herring	Hareng salé	Salzhering	Aringa salata	Arenque salado	Salt sill
HINDQUARTER	Quartier de derrière	Hinterviertel	Quarto di dietro	Cuarto trasero	Bakfjärding
HOMINY	Semoule de maïs blanc	Weisser Mais Gries. Grob gemahlener Mais	Semolino di granoturco bianco	Maíz molido	Majskrossgryn
HONEY	Miel	Honig	Miele	Miel	Honung
Honeycomb	Rayon de miel	Honigwaben	Favo	Panal de miel	Honungskaka
HORSERADISH	Raifort	Meerrettich	Rafano Ramolaccio	Rábano silvestre	Pepparrot
HUCKLEBERRIES	Myrtils	Heidelbeeren Blaubeeren	Mirtilli	Arándano	Blåbär
ICE	Glace	Eis	Ghiaccio	Hielo	Is
ICE (dessert)	Glace	Gefrorenes	Gelato. Sorbetto	Sorbete	Glace
ICE CREAM	Glace. Glace à la crème	Gefrorenes. Eiscreme	Crema ghiacciata. Gelato	Helado	Glace
ICING	Glace. Glace royale. Glaçage (*cooked*)	Glasur aus Zucker. Zuckerguss	Crosta di zucchero	Capa de azúcar con clara de huevo	Glasering. Glasyr kandering
INDIAN MEAL.	See *Cornmeal*				
JAM	Confiture	Marmelade. Eingemachtes	Conserva. Confettura	Compota	Sylt
JELLY	Gelée	Gelee	Gelatina	Jalea	Gelé
JERUSALEM ARTICHOKE	Topinambour	Jerusalem-Artischocke	Elianto tuberoso	Aguaturma Cotufa	Jordärtskocka
JOINT (of meat)	Grosse pièce	Grosses Stück Grosses Fleischstück	Taglio	Cuarto de una res	Stort köttstycke
JUICE	Jus	Saft	Succo. Sugo	Jugo	Saft
KALE	Chou vert frisé	Krauskohl. Blätterkohl	Cavolo riccio	Bretón	Kruskål
KIDNEY	Rognon	Nieren	Rognone	Riñones	Njure
KOHLRABI	Chourave	Kohlrabi	Cavolo rapa	Colinabo	Kålrabbi
LAMB	Agneau	Lamm	Agnello	Carne de cordero	Lamkött
Spring lamb	Agneau de lait	Milchlamm	Agnello di latte	Corderillo	Dilamm

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
LARD	Saindoux	Schweineschmalz	Lardo. Saime Grasso strutto	Manteca de puerco	Ister. Svinfett
LEEKS	Poireaux	Lauch	Porri	Puerros	Purjolök
LEG	Patte (*of small birds, etc.*) Cuisse (*of chicken, frogs, etc.*) Gigot (*of lamb, mutton, etc.*) Cuissot (*of veal, venison, etc.*) Trumeau (*of beef*)	Keule. Schlegel	Gambe (*of small birds, frogs, etc.*) Coscia (*of animals and larger birds*)	Pata	Ben (*of birds, frogs, etc.*) Lår. Larstycke (*of animals*)
LEMON	Citron. Limon	Citrone. Limone	Limone	Limón	Citron
Lemon extract	Alcoolat de citron	Citronen-Extrakt	Essenza (*or* Estratto) di limone	Esencia de limón	Citronextrakt
Lemon juice	Jus de citron	Citronensaft	Sugo di limone Agro di limone	Zumo de limón	Sur citronsaft
Lemon peel	Écorce de citron	Citronenschale	Scorza di limone	Corteza de limón	Citronskal
Candied lemon peel	Citronnat	Citronat	Scorza di limone candita	Corteza de limón confitada	Kanderat citronskal
LEMONADE	Limonade	Limonade	Limonata	Limonada	Limonad
LENTILS	Lentilles	Linsen	Lenticchie	Lentejas	Linser
LETTUCE	Laitue	Kopfsalat	Lattuga	Lechuga	Grönsalad
Cos lettuce.	See *Romaine*				
LIME (fruit)	Lime	Limette	Lima (piccolo limone)	Lima	Limon (en liten citron)
Lime juice	Jus de lime	Limettensaft	Cedrato. Agro di lima	Zumo de lima	Limonsaft
LIVER	Foie	Leber	Fegato	Hígado	Lefver
LOBSTER	Homard	Hummer	Gambero marino Astaco	Langosta	Hummer
LOIN	Longe	Lenden-Stück	Lombo	Lomo	Främre ländstycke. Oxhare
MACARONI	Macaroni	Makaroni	Maccheroni	Macarrones	Makaroni
MACAROONS	Macarons	Makronen	Amaretti	Almendrados	Makron (ett slags mandel-bakelse)
MACE	Macis	Muskatblüte	Macis	Macis	Muskotblomma
MACKEREL	Maquereau	Makrele	Sgombro	Macarela	Makrill
Salt mackerel	Maquereau salé	Salz-Makrele	Sgombro salato	Macarela salada	Salt makrill
MAIZE	See *Corn (Indian)*				
MANGO	Mangue	Mangofrucht	Mango	Mango (fruta)	Mango
MAPLE-SIRUP	Sirop d'érable	Ahornsirup	Sciroppo di acero	Jarabe de arce	Lönnsirap
MAPLE-SUGAR	Sucre d'érable	Ahornzucker	Zucchero di acero	Azúcar de arce	Lönnsocker
MARCHPANE	Massepain	Marzipan	Marzapane	Mazapán	Marsipan
MARJORAM (sweet)	Marjolaine	Meiran	Magiorana (dolce)	Mejorana	Mejram
MARMALADE (orange)	Marmelade (d'oranges)	Marmelade (von Apfelsinen)	Marmellata. Conserva di aranci	Mermelada de naranja	Marmelad. Sylt af apelsiner
MARROW	Moëlle	Mark	Midollo	Médula. Tuétano	Märg
Marrow-bone	Os à moëlle	Markknochen	Osso midolloso	Hueso medular	Märgben
MEAT	Viande	Fleisch	Carne	Carne	Kött
See also *Beef*, etc.					
MEAT EXTRACT	Extrait de viande	Fleischextrakt	Essenza (*or* Estratto) di carne	Extracto de carne	Köttextrakt
MEDLAR	Nèfle	Mispel	Nespola	Níspola	Mispel
MELON	Melon	Melone	Mellone	Melón	Melon
MILK	Lait	Milch	Latte	Leche	Mjölk
MILT	See *Roe (soft)*				
MINERAL WATERS	Eaux minérales	Mineral-Wasser	Acque minerali	Aguas minerales	Mineralvatten
MINT	Menthe	Minze	Menta	Menta	Mynta
MOLASSES	Mélasse	Melasse	Melassa	Melaza. Melote	Sirap. Sockersirap
MULBERRIES	Mûres	Maulbeeren	More	Moras	Mullbär
MUSHROOMS	Champignons	Pilze	Funghi	Hongos	Champinjoner
MUSKMELON	See *Cantaloupe*				
MUSSELS	Moules	Muscheln	Datteri di mare	Mejillones	Musslor
MUSTARD	Moutarde	Senf. Mostrich	Senapa. Mostarda	Mostaza	Senap
MUTTON	Mouton	Hammelfleisch	Castrato	Carne de carnero	Fårkött

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NECK	Cou	Hals	Collo	Cuello	Hals. Halsstycke
NECTARINE	Brugnon	Nektarine	Pesca noce	Pérsico	Nektarin
NOODLES	Nouilles	Nudeln	Una forma di pasta alimentare simile alle fettuccelle	Tallarines	Nudlar
NUTMEG	Muscade	Muskatnuss	Noce moscata	Nuez moscada	Muskott
NUTS	Noix	Nüsse	Noci	Nueces	Nötter
OATMEAL	Farine d'avoine	Hafergrütze	Farina di avena	Harina de avena	Hafremjöl
OIL	Huile	Öl	Olio	Aceite	Olja
Sweet oil	Huile de table	Speiseöl	Olio da tavola	Aceite de comer	Matolja
OKRA	Gombaut	Ochra. Gombo	Ocra	Quimbombó	Ockra
OLIVES	Olives	Oliven	Olive	Aceitunas	Oliver
OLIVE OIL	Huile d'olive	Olivenöl	Olio d'oliva	Aceite de oliva	Olivolja
ONIONS	Oignons	Zwiebeln	Cipolle	Cebollas	Lök
ORANGES	Oranges	Apfelsinen Orangen	Aranci	Naranjas	Apelsiner
OXTAIL	Queue de bœuf	Ochsenschwanz	Coda di bue	Rabo de buey	Oxsvans
OX-TONGUE	Langue de bœuf	Ochsenzunge	Lingua di manzo	Lengua de buey	Oxtunga
OYSTERS	Huîtres	Austern	Ostriche	Ostras. Ostiones (*large oysters*)	Ostron
OYSTER-PLANT	Salsifis	Salsify	Scorzonera	Salsifí	Salsofi.
PARSLEY	Persil	Petersilie	Prezzemolo	Perejil	Persilja
PARSNIPS	Panais	Pastinake	Pastinache	Chirivia Pastinaca	Palsternacka
PARTRIDGE	Perdrix	Rebhuhn	Pernice	Perdiz	Rapphöns
PASTRY	Pâtisserie	Backwerk	Pasticceria	Pasteleria	Bakverk. Smörbakelse
PATTY	Pâté	Pastete	Pasticcetto	Pastelillo	Pastej
PEAS	Pois	Erbsen	Piselli	Guisantes	Ärter
Green peas	Petits pois	Grüne Erbsen	Piselli verdi	Guisantes verdes	Gröna ärter
Split peas	Pois cassés	Getrocknete geschälte Erbsen	Piselli spaccati	Guisantes partidos	Krossade ärter
PEACHES	Pêches (*freestone*) Pavies (“*clings*”)	Pfirsiche	Pesche	Duraznos	Persikor
PEANUTS	Arachides	Erdnüsse	Pistacchi di terra	Cacahuetes	Jordnötter
PEARS	Poires	Birnen	Pere	Peras	Päron
PEPPER	Poivre	Pfeffer	Pepe	Pimienta	Peppar
Black pepper	Poivre noir	Schwarzer Pfeffer	Pepe nero	Pimienta negra	Starkpeppar
White pepper	Poivre blanc	Weisser Pfeffer	Pepe bianco	Pimienta blanca	Hvitpeppar
Red pepper	Poivre rouge	Roter Pfeffer	Pepe rosso	Pimentón	Rödpeppar
Cayenne pepper	Poivre de Guinée	Spanischer Pfeffer	Pepe di Caienna	Pimiento	Cayenne peppar
Peppercorns	Grains de poivre	Pfefferkörner	Grani di pepe	Granos de pimienta	Pepparkorn
PEPPERS (*fresh*)	Piments	Frische Pfefferschoten	Peperoni comuni	Pimientos frescos	Färsk peppar
PEPPERMINT	Menthe poivrée	Pfefferminz	Menta pepata	Yerbabuena	Pepparmynta
PHEASANT	Faisan	Fasan	Fagiano	Faisán	Fasan
PIE	Pâté (*covered and chiefly of meat*) Tourte (*open and preferably of meat*) Tarte (*open and chiefly of jam, fruit, etc.*)	Pastete	Pasticcio. Torta Crostata	Pastel	Pastej (*meat or sweet*) Tårta (*sweet*)
PIG	Cochon	Schwein	Porco. Majale	Carne de puerco	Gris. Svin
Sucking pig	Cochon de lait	Spanferkel Milchschwein	Porcellino lattante	Lechoncillo	Digris
Pig's tongue	Langue de porc	Schweinszunge	Lingua di porco	Lengua de puerco	Gristunga
PIGEON	Pigeon	Taube	Piccione	Paloma	Dufva
Young pigeon	See *Squab*				
PINEAPPLE	Ananas	Ananas	Ananasso	Piña	Ananas
PISTACHIO-NUTS	Pistaches	Pistaziennüsse	Noci di pistacchio	Pistachos	Pistacier
PLUMS	Prunes	Pflaumen	Prugne	Ciruelas	Plommon

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
PLUMPUDDING	Plumpudding	Plumpudding	Budino inglese	Pudín inglés	Plumpudding
POMEGRANATE	Grenade	Granatapfel	Melagrana	Granada	Granatäpple
PORK	Porc	Schweinefleisch	Porco	Carne de puerco	Fläsk
Fresh pork	Porc frais	Frisches Schweinefleisch	Porco fresco	Tocino fresco	Färskt fläsk
Corned (or Salt) pork	Porc salé	Pökelfleisch	Porco salato Lardone	Carne de puerco salada	Saltadt fläsk
POTATOES	Pommes de terre	Kartoffeln	Patate	Patatas. Papas	Potatis
POULTRY	Volaille	Geflügel	Pollame	Aves de corral	Fjäderfä. Hönsfåglar
PRAWNS	Crevettes	Garneelen	Granchiolini Gamberetti di mare	Camarón de mar (palemón)	Räkor
PRESERVES	Confiture (*as "jam"*) Conserves (*less sweet or dryer*)	Eingemachtes	Conserve	Conservas	Konserver
PRUNES	Pruneaux	Backpflaumen	Prugne secche	Ciruelas pasas	Sviskon
PUMPKIN	Citrouille	Kürbis	Zucca (melopopone)	Calabaza	Pumpa
QUAIL	Caille	Wachtel	Quaglia	Codorniz	Vaktel
QUINCE	Coing	Quitte	Mela cotogna	Membrillo	Kvitten
RABBIT	Lapin	Kaninchen	Coniglio	Conejo	Kanin
RADISHES	Radis	Rettichen	Ravanelli	Rábanos	Rädisor
RAISINS	Raisins secs	Rosinen	Uva passa	Pasas	Russin
RASHER of bacon	Tranche de lard	Speckscheiben	Fetta sottile di lardo	Lonja de tocino	Rökt fläskskifva
RASPBERRIES	Framboises	Himbeeren	Lamponi	Frambuesas	Hallon
RENNET	Caillette	Käselab	Caglio	Cuajo	Renett
RHUBARB	Rhubarbe	Rhabarber	Rabarbaro	Ruibarbo	Rabarber
RIB	Côte	Rippe	Costola	Costillas	Refben
RICE	Riz	Reis	Riso	Arroz	Ris
Rice-flour	Farine de riz	Reismehl	Farina di riso	Harina de arroz	Rismjöl
ROAST	Rôti	Braten	Arrosto	Asado	Stek
ROE (hard)	Frai	Rogen	Uova di pesce	Hueva	Rom
" (soft). Milt	Laitance	Milch (der Fische)	Latte di pesce	Lechecilla de pez	Mjölke
ROLLS (bread)	Petits pains	Brötchen	Panini	Panecillos Mollettes	Franska bröd. Smörbröd
ROMAINE (lettuce)	Romaine	Römischer Salat	Lattuga romana	Lechuga romana	Ett slags grönsallat
ROUND (of beef)	Rouelle	Keule (rind)	Rotella	Rodaja de carne (Lomo)	Innanlår
RUMP	Culotte	Rumpfstück Schwanzstück	Culatta	Solomo	Svansstek. Bakre ländstycke
RYE	Seigle	Roggen	Segala	Centeno	Råg
Rye-flour	Farine de seigle	Roggenmehl	Farina di segala	Harina de centeno	Rågmjöl
SADDLE (of meat)	Selle	Rücken. Rückenstück	Schiena	Lomo	Sadel
SAGE	Sauge	Salbei	Salvia	Salvia	Salvia
SAGO	Sagou	Sago	Sago	Sagú	Sago
ST. JOHN'S BREAD.	See *Carob-bean*				
SALAD	Salade	Salat	Insalata	Ensalada	Salad
SALMON	Saumon	Lachs	Salmone	Salmón	Lax
SALT	Sel	Salz	Sale	Sal	Salt
SAMP See also *Hominy*	Maïs blanc	Weisser Mais	Granoturco bianco	Maíz descortezado	Majs
SARDINES	Sardines	Sardinen	Sardine	Sardinas	Sardiner
SARSAPARILLA	Salsepareille	Sarsaparille	Salsapariglia	Zarzaparrilla	Sassaparill
SASSAFRAS	Sassafras	Sassafras	Sassafrasso	Sasafrás	Sassafrasbark
SAUCE	Sauce	Tunke. Muss (as. *Apfelmuss*, apple sauce)	Salsa	Salsa	Sås
SAUERKRAUT	Choucroute	Sauerkraut	Sourcrout. Crauti. Cavoli salati	Col ácida	Surkål
SAUSAGE	Saucisse	Wurst	Salsiccia	Salchicha	Korf
SAVOY CABBAGE	Chou de Savoie	Savoyerkohl	Cavolo cappuccio	Col rizada	Savojkål
SCALLOPS	Pétoncles	Kammuschel	Pettonchi	Veneras	Kammussla
SEASONING	Assaissonement	Würze	Condimento	Condimento	Kryddning

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
SEMOLINA	See *Farina* (2)				
SHAD	Alose	Maifisch. Alse	Cheppia	Sábalo Alosa	Staksill
SHADDOCK	See *Grapefruit*				
SHALLOT	Échalote	Schalotte	Scalogno	Chalote Ascalonia	Schalottenlök
SHELLFISH	Crustacés (*lobsters, etc.*) Mollusques (*oysters, etc.*)	Schaltiere	Pesce con guscio Pesce di scorza	Mariscos	Skaldjur
SHOULDER	Épaule	Schulter	Spalla	Espaldilla Pernil (*pork*)	Bog
SHRIMPS	Crevettes salicoque	Garneelen	Gamberettini Granchiolini	Camarones	Räkor
SIRUP	Sirop	Sirup	Sciroppo	Jarabe	Sirap
SKIN	Peau	Haut	Pelle	Piel	Skinn
SLICE	Tranche (*of meat*) Darne (*of large fish*) Escalope (*thin slice*)	Schnitte. Scheibe	Fetta	Rebanada Lonja Tajada	Skifva
SNAILS	Escargots	Schnecken	Lumache	Caracoles	Sniglar
SNIPE	Bécassine	Schnepfe	Beccaccino	Becardón Agachadiza	Beckasin
SODA	Soude. Carbonate de soude	Soda. Kohlensaures Natron	Soda. Carbonato di soda	Soda	Soda. Kolsyradt natron
SODA-WATER	See *Carbonated Waters*				
SOLE (fish)	Sole	Seezunge. Scholle	Sogliuola	Lenguado	Hafstunga Sjötunga
SORREL	Oseille	Sauerampfer	Acetosa	Acedera	Syra
SOUP	Potage	Suppe	Zuppa	Sopa	Soppa
SPARE-RIBS	Plates-côtes (de porc)	Schweinerippchen	Costole di porco	Costillas de cerdo	Refbensspjäll
SPICE	Épice	Gewürz	Spezie	Especia	Krydda
SPINACH	Épinards	Spinat	Spinacci	Espinaca	Spenat
SQUAB	Pigeonneau	Junge Taube	Piccioncello Piccione novello	Pichón	Ung dufva
SQUASH	Courge	Melonenkürbis	Zucca	Calabaza	Många olika sorter af Kurbits-slägtet
STEAK	Bifteck	Beefsteak	Bifstek Braciuola. Bistecca	Biftec	Biffstek. Stek. Köttskifva
STOMACH	Estomac	Magen	Stomaco	Estómago	Mage
STRAWBERRIES	Fraises	Erdbeeren	Fragole	Fresas	Jordgubbar
Strawberry shortcake	Gâteau aux fraises	Erdbeerkuchen	Focaccia di fragole	Pastel de fresas	Jordgubbstårta
STUFFING	Farce	Füllung. Füllsel	Ripieno	Relleno	Fyllning
STURGEON	Esturgeon	Stör	Storione	Esturión	Stör
SUET	(*Beef*) Graisse de rognon de bœuf (*Mutton*) Suif. Graisse de mouton	Rindsnierenfett (*beef*) Talg (*mutton*)	Sugna	Sebo en rama	Njurfett
SUGAR	Sucre	Zucker	Zucchero	Azúcar	Socker
Brown sugar	Sucre brut	Brauner Zucker	Zucchero di muscavado	Azúcar moreno	Brunt farinsocker
Granulated sugar	Sucre granulé	Körniger Zucker	Zucchero in grano	Azúcar granulado	Strösocker
Lump sugar	Sucre en morceaux	Stücken-Zucker	Zucchero in pezzetti pani	Azúcar en terrones	Bitsocker
Powdered sugar	Sucre en poudre	Puder-Zucker	Zucchero polverizzato	Azúcar en polvo	Pudersocker
SWEETBREAD	Ris	Bröschen	Animella	Lechecillas	Bräss
Calf's sweetbread	Ris de veau	Kalbsbröschen	Animella di vitello	Mollejas de ternera	Kalfbräss
SWEET-POTATOES	Patates	Bataten Süsse Kartoffeln	Batate Patate dolci	Batatas	Söt potatis

ENGLISH	*FRENCH*	*GERMAN*	*ITALIAN*	*SPANISH*	*SWEDISH*
TAPIOCA	Tapioca	Tapioka	Tapioca	Tapioca	Tapioca. Kassavagryn
TARRAGON	Estragon	Estragon	Targone Artemisia	Estragón	Kejsarsallat. Estragon. Dragonört
TART See also *Pie*	Tartelette	Torte	Torta	Tarta	Tårta. Pastej
TEA	Thé	Thee	Te	Te	Te
TENDERLOIN	Filet	Lendenstück	Filetto	Filete (solomillo)	Filet
THYME	Thym	Thymian	Timo	Tomillo	Timjan
TOAST	Pain rôti	Geröstetes Brot	Pane abbrustolato	Tostada	Rostadt bröd
TOMATO	Tomate	Tomate. Paradiesapfel	Tomata. Pomo d'oro	Tomate	Tomat
TONGUE	Langue	Zunge	Lingua	Lengua	Tunga
TORTOISE (land)	Tortue de terre	Land-Schildkröte	Tartaruga di terra	Tortuga de tierra	Landsköldpadda
“ (fresh-water)	“ d'eau douce	Fluss-Schildkröte	Tartaruga di fiume	“ de río	Färsk-vattens sköldpadda
TRIPE	Tripes	Kaldaunen	Trippa	Mondongo-callos	Maghinna. Ränta
TROUT	Truite	Forelle	Trota	Trucha	Forell
TRUFFLES	Truffes	Trüffeln	Tartufi	Trufas	Tryffel
TUNNY-FISH	Thon	Thunfisch	Tonno	Atún	Tonfisk
TURBOT	Turbot	Steinbutt	Rombo	Rodaballo	Pigghvar
TURKEY	Dinde	Puter. Truthahn	Tacchino	Pavo	Kalkon
Young turkey	Dindonneau	Junger Puter	Tacchino giovane	Pavipollo	Kalkonkyckling
TURNIPS	Navets (*long kind*) Raves (*round and flat kinds*)	Rüben. Steckrüben	Rape	Nabos	Rofva Kålrötter
TURTLE	Tortue (de mer)	Suppen-Schildkröte	Tartaruga (di mare)	Tortuga (de mar)	Hafs sköldpadda
VANILLA	Vanille	Vanille	Vaniglia	Vainilla	Vanilj
VEAL	Veau	Kalbfleisch	Vitello	Carne de ternera	Kalfkött
VEGETABLES	Légumes	Gemüse	Legumi Verdura (*green vegetables*)	Legumbres Verdura (*green vegetables*)	Köksväxter Grönsaker (*green vegetables*)
VENISON	Venaison	Wildbret	Selvaggiume	Carne de venado	Rådjurskött
VERMICELLI	Vermicelle	Fadennudeln	Vermicelli	Fideos	Vermiceller
VINEGAR	Vinaigre	Essig	Aceto	Vinagre	Ättika
Cider vinegar	Vinaigre de cidre	Äpfelweinessig	Aceto di sidro	Vinagre de sidra	Ciderättika
Malt vinegar	Vinaigre de malt	Malzessig	Aceto d'orzo	Vinagre de malta	Maltättika
Wine vinegar	Vinaigre de vin	Weinessig	Aceto di vino	Vinagre de vino	Vinättika
WAFFLES	Gaufres	Waffeln	Cialde	Barquillos	Våfflor
WALNUTS	Noix	Wallnüsse	Noci	Nueces	Valnötter
WATER	Eau	Wasser	Acqua	Agua	Vatten
WATERCRESS	Cresson de fontaine	Brunnenkresse	Crescione di riviera	Berro	Vattenkrasse
WATERMELON	Melon d'eau	Wassermelone	Cocomero	Sandía	Vattenmelon
WHEAT	Blé	Weizen	Frumento	Trigo	Hvete
WING	Aile	Flügel	Ala	Ala	Vinge
YEAST	Levure	Hefe	Lievito	Levadura	Jäst

DICTIONNAIRE FRANÇAIS-ANGLAIS

A

Abatis. Giblets.
Abricots. Apricots.
Agneau. Lamb.
Agneau de lait. Spring lamb.
Ail. Garlic.
Aile. Wing (*membre des oiseaux*).
Airelles rouges. Cranberries.
Alose. Shad.
Amandes. Almonds.
Ananas. Pineapple.
Anchois. Anchovies.
Anguille. Eel.
Anis. Anise.
Arachides. Peanuts.
Aromates. Aromatic herbs.
Arrow-root. Arrowroot.
Artichauts. Artichokes.
Fonds (ou culs) d'artichauts. Artichoke bottoms.
Asperges. Asparagus.
Asperges blanches. White asparagus.
Asperges vertes. Green asparagus.
Pointes d'asperges. Asparagus tips.
Assaisonnement. Seasoning.
Aubergine. Eggplant.
Avelines. Filberts. Hazel-nuts.
Avocat (Poire d'). Avocado (alligator-pear).
Avoine, Farine d'. Oatmeal.

B

Baies. Berries.
Bananes. Bananas.
Bécassine. Snipe.
Betteraves. Beetroots.
Beurre. Butter.
Beurre de cuisine. Cooking butter.
Beurre salé. Salt butter.
Bifteck. Steak.
Biscuits. Biscuits.
Biscuit de mer. Hard tack.
Blé. Wheat.
Bœuf. Beef.
Bœuf fumé. Dried (smoked) beef.
Bœuf épicé. Spiced beef.
Bœuf rôti. Roast beef.
Bœuf salé. Corned beef.
Bonbons. Candy. Sweets.
Bouillon. Broth.
Brisquet. Brisket.
Brocoli. Broccoli.
Brugnon. Nectarine.

C

Cabillaud. Codfish.
Cacao. Cocoa.
Café. Coffee.
Café en grains. Whole coffee.
Café grillé. Roasted coffee.
Café moulu. Café en poudre. Ground coffee.
Caille. Quail.
Caillette. Rennet.
Canard. Duck.
Canard sauvage. Wild duck.
Cannelle. Cinnamon.
Cantaloup. Muskmelon. Cantaloupe.
Câpres. Capers.
Cardamome. Cardamom.
Carottes. Carrots.
Caroube. Carob-bean.
Carré. Rack.
Casse aromatique. Cassia.
Caviar. Caviar.
Cédrat confit. Candied citron.
Céleri. Celery.
Cerises. Cherries.
Cervelle. Brains.
Champignons. Mushrooms.
Chapon. Capon.
Chicorée. Chicory.
Chocolat. Chocolate.
Chou. Cabbage.
Salade de chou. Cole slaw.
Chou de Savoie. Savoy cabbage.
Chou vert frisé. Kale.
Choucroute. Sauerkraut.
Choufleur. Cauliflower.
Chourave. Kohlrabi.
Choux de Bruxelles. Brussels sprouts.
Cidre. Cider.
Cimier. Haunch (*de venaison*).
Citron. Lemon.
Alcoolat de citron. Lemon extract.
Écorce de citron. Lemon peel.
Jus de citron. Lemon juice.
Citronnat. Candied lemon peel.
Citrouille. Pumpkin.
Cochon. Pig.
Cochon de lait. Sucking pig.
Coco (noix de). Coconut.
Coeur. Heart.
Coing. Quince.
Concombre. Cucumber.
Concombres confits. Pickled cucumbers.
Confiture. Jam.
Conserves. Preserves.
Coriandre. Coriander.
Cornichons. Gherkins.
Côte. Rib.
Côtelette. Cutlet. Chop.
Cou. Neck.
Courge. Squash.
Crabe. Crab.
Crabe mou. Soft shell crab.
Crème. Cream.
Cresson. Cress.
Cresson de fontaine. Water-cress.
Crevettes. Prawns. Shrimps.
Crustacés. Shellfish.
Cuisse. Cuissot. Leg.
Culotte. Rump.
Cumin des prés. Caraway-seed.

D

Darne. Slice.
Dattes. Dates.
Dent-de-lion. Dandelion.
Dessert. Dessert.
Dinde. Turkey.
Dindonneau. Young turkey.

E

Eau. Water.
Eaux gazeuses. Carbonated waters.
Eaux minérales. Mineral waters.
Échalote. Shallot.
Écrevisses. Crayfish.
Égrefin. Haddock.
Égrefin fumé. Smoked haddock. "Finnan Haddie."
Endive. Endive.
Épaule. Shoulder.
Épice. Spice.
Pain d'épice. Gingerbread.
Épinards. Spinach.
Érable, Sirop d'. Maple-sirup.
Érable, Sucre d'. Maple-sugar.
Escalope. Thin slice.
Escargots. Snails.
Estomac. Stomach.
Estragon. Tarragon.
Esturgeon. Sturgeon.
Extrait. Extract.

F

Faisan. Pheasant.
Farce. Stuffing.
Farine (de froment). Wheat-flour.
Farine de seigle. Rye-flour.
Fèves. Beans.
Figues. Figs.
Filet. Tenderloin.
Flageolets. Young green beans.
Foie. Liver.
Foie gras. Goose liver.
Frai. Roe (hard).
Fraises. Strawberries.
Gâteau aux fraises. Strawberry shortcake.
Framboises. Raspberries.
Fromage. Cheese.
Fromage à la crème. Cream cheese.
Fromage râpé. Grated cheese.
Fruits. Fruit.
Fruits glacés. Candied fruit.
Fruits secs. Dried fruit.

G

Garniture. Garnishing.
Gâteau. Cake.
Gaufres. Waffles.
Gélatine. Gelatin.
Gelée. Jelly.
Gésier. Gizzard.
Gibier. Game.
Gigot. Leg.
Gingembre. Ginger.
Boisson au gingembre. Ginger ale.
Girofles. Cloves.
Glaçage. Icing (cooked).
Glace. Ice.
Glace à la crème. Ice cream.
Glace. Glace royale. Icing. Frosting.
Gombaut. Okra.
Goyave. Guava.
Graisse. Fat.
Graisse de rognon de bœuf. Beef suet.
Graisse de mouton. Mutton suet.
Grenade. Pomegranate.
Grenouilles, Cuisses de. Frogs' legs.
Groseilles. Currants (fresh).
Groseilles à maquereau. Gooseberries.
Grosse pièce. Joint.

H

Hareng. Herring.
Harengs marinés. Harengs salés. Pickled herrings.
Harengs saurs. Kippered herrings. Smoked herrings. "Bloaters" (*anglais*).
Haricots. Kidney-beans.
Haricots blancs secs. Navy beans.
Haricots à cosse jaune. Wax beans.
Haricots de Lima. Lima beans.
Haricots verts. String-beans.
Herbes. Herbs.
Fines herbes. Herbes aromatiques. Fine herbs. Sweet herbs.
Homard. Lobster.
Huile. Oil.
Huile de table. Sweet oil.
Huîtres. Oysters.

J

Jambon. Ham.
Jus. Juice. Gravy (*de la viande*).

L

Lait. Milk.
Lait concentré. Condensed milk.
Lait de beurre. Buttermilk.
Laitance. Roe (soft).
Laitue. Lettuce.
Langue. Tongue.
Langue de bœuf. Ox-tongue.
Langue de porc. Pig's tongue.
Lapin. Rabbit.
Lard. Bacon.
Légumes. Vegetables.
Légumes verts. Green vegetables. Greens.
Lentilles. Lentils.
Levure. Yeast.
Levure en poudre. Baking powder.
Lièvre. Hare.
Lime. Lime.
Jus de lime. Lime juice.
Limonade. Lemonade.
Longe. Loin.
Lucines. Clams.
Lucines orangées. Hard clams.
Lucines papillons. Soft clams.

M

Macaroni. Macaroni.
Macarons. Macaroons.
Macis. Mace.
Maïs. Corn (Indian).
Farine de maïs. Cornmeal.
Fécule de maïs. Cornstarch.
Semoule de maïs blanc. Hominy.
Mangue. Mango.
Maquereau. Mackerel.
Maquereau salé. Salt mackerel.
Marinade. Vinegar pickle (*de vinaigre*). Brine (*de sel*).
Marjolaine. Marjoram (sweet).
Marmelade. Marmalade (*ordinairement, d'oranges*).
Marrons. Chestnuts.
Massepain. Marchpane.
Mélasse. Molasses.
Melon. Melon.
Melon d'eau. Watermelon.
Menthe. Mint.
Menthe poivrée. Peppermint.
Miche. Loaf.
Miel. Honey.
Rayon de miel. Honeycomb.
Moëlle. Marrow.
Os à moëlle. Marrow-bone.
Morue. Codfish.
Morue salée. Salt cod.
Morue sèche. Dried cod.
Moules. Mussels.
Moût. Grape juice.
Moutarde. Mustard.
Mouton. Mutton.
Mûres. Mulberries.
Mûres de haie. Blackberries.
Muscade. Nutmeg.
Myrtils. Huckleberries. Blueberries.

N

Navets. Turnips.
Nèfle. Medlar.
Noix. 1. Walnuts (*fruit du noyer*). 2. Nuts (*des noix de toute espèce*).
Noix du Brésil. Brazil-nuts.
Noues. Cod sounds.
Nouilles. Noodles.

O

Œufs. Eggs.
Blancs d'œuf. Egg whites.
Jaunes d'œuf. Yolks.
Oie. Goose.
Oison. Gosling.
Oignons. Onions.
Olives. Olives.
Huile d'olive. Olive oil.
Oranges. Oranges.
Orge. Barley.
Os. Bone.
Oseille. Sorrel.

P

Pain. Bread.
Pain bis. Brown (or Graham) bread.
Pain blanc. White bread.
Pain de ménage. Home-made bread.
Pain de seigle. Rye bread.
Pain tendre. New bread.
Pain rôti. Toast.
Petits pains. Rolls.
Pamplemousse. Grapefruit
Panais. Parsnips.
Patates. Sweet potatoes.
Pâté. Pie. Patty (*petit*).
Pâtisserie. Pastry.
Patte. Leg.
Pavies. Peaches ("clings").
Peau. Skin.
Pêches. Peaches ("freestones").
Perdrix. Partridge.
Persil. Parsley.
Pétoncles. Scallops.
Pigeon. Pigeon.
Pigeonneau. Squab.
Piment de la Jamaïque. Allspice.
Piments. Peppers.
Pintade. Guinea-fowl.
Pistaches. Pistachio-nuts.
Plumpudding. Plum pudding.
Poires. Pears.
Poireaux. Leeks.

Pois. Peas.
Pois cassés. Split peas.
Petits pois. Green peas.
Poisson. Fish.
Poisson d'eau douce. Fresh-water fish.
Poisson de mer. Salt-water fish.
Poivre. Pepper.
Poitrine. Breast.
Poivre blanc. White pepper.
Poivre noir. Black pepper.
Poivre rouge. Red pepper.
Poivre de Guinée. Cayenne pepper.
Grains de poivre. Pepper-corns.
Poivrons de Guinée. Chilies.
Pommes. Apples.
Pommes à couteau. Eating apples.
Pommes à cuire. Cooking apples.
Pommes sauvages. Crab-apples.
Pommes tapées. Dried apples.
Pommes de terre. Potatoes.
Poncire. Citron.
Porc. Pork.
Porc frais. Fresh pork.
Porc salé. Corned (*ou* Salt) pork.
Plates-côtes (de porc). Spare-ribs.
Fromage de porc. Head-cheese.
Potage. Soup.
Poule. Hen.
Poulet. Chicken.
Poulet de grain. Spring chicken.
Poulet à rôtir. Roasting chicken.
Poulet à sauter. Frying chicken.
Pruneaux. Prunes.
Prunes. Plums.

Q

Quartier de derrière. Hindquarter.
Quartier de devant. Forequarter.
Queue. Tail.
Queue de bœuf. Oxtail.

R

Radis. Radishes.
Raifort. Horseradish.
Raisins. Grapes.
Raisins de Corinthe. Currants (dried).
Raisins secs. Raisins.
Raves. Turnips.
Rhubarbe. Rhubarb.
Ris. Sweetbread.
Ris de veau. Calf's sweetbread.
Riz. Rice.
Farine de riz. Rice-flour.
Rognon. Kidney.
Romaine. Romaine (lettuce).
Rosbif. Roast beef.
Rôti. Roast.
Rouelle. Round.

S

Sagou. Sago.
Saindoux. Lard.
Salade. Salad.
Salsepareille. Sarsaparilla.
Salsifis. Oyster-plant.
Sarazin. Buckwheat.
Sardines. Sardines.
Sassafras. Sassafras.
Sauce. Sauce.
Saucisse. Sausage.
Sauge. Sage.
Saumon. Salmon.
Seigle. Rye.
Sel. Salt.
Selle. Saddle.
Semoule. Farina (wheat).
Sirop. Sirup.
Sole. Sole.
Soude. Carbonate de soude. Soda. Carbonate of soda.
Sucre. Sugar.
Sucre brut. Brown sugar.
Sucre granulé. Granulated sugar.
Sucre en morceaux. Lump sugar.
Sucre en poudre. Powdered sugar.
Sucreries. Candy. Sweets.
Suif. Suet (mutton).

T

Talmouse. Cheese cake.
Tapioca. Tapioca.
Tarte. Pie.
Tartelette. Tart.
Tête. Head.
Tétras. Grouse.
Thé. Tea.
Thon. Tunny-fish.
Thym. Thyme.
Tomate. Tomato.
Topinambour. Jerusalem artichoke.
Tortue. Turtle (*tortue de mer*). Tortoise (*tortue de terre ou d'eau douce*).
Tourte. Pie.
Tranche. Slice (*de bœuf, etc.*). Rasher (*de lard*).
Tripes. Tripe.
Truffes. Truffles.
Truite. Trout.
Trumeau. Leg.
Turbot. Turbot.

V

Vanille. Vanilla.
Veau. Veal.
Cervelle de veau. Calf's brains.
Foie de veau. Calf's liver.
Tête de veau. Calf's head.
Venaison. Venison.
Vermicelle. Vermicelli.
Viande. Meat.
Extrait de viande. Meat extract.
Vinaigre. Vinegar.
Vinaigre de cidre. Cider vinegar.
Vinaigre de malt. Malt vinegar.
Vinaigre de vin. Wine vinegar.
Volaille. Poultry.

WÖRTERBUCH DEUTSCH-ENGLISCHES

A

Aal. Eel.

Ahornsirup. Maple-sirup.

Ahornzucker. Maple-sugar.

Alse. Shad.

Ananas. Pineapple.

Anis. Anise.

Anschovies. Anchovies.

Äpfel. Apples.

Getrocknete Äpfel. Dried apples.

Kochäpfel. Cooking apples.

Tafeläpfel. Eating apples.

Apfelsinen. Oranges.

Apfelwein. Cider.

Aprikosen. Apricots.

Artischocken. Artichokes.

Artischockenböden. Artichoke bottoms.

Austern. Oysters.

Avocado-Birne. Avocado (alligator-pear).

B

Backpflaumen. Prunes.

Backpulver. Baking powder.

Backwerk. Pastry.

Bananen. Bananas.

Bataten. Sweet-potatoes.

Beefsteak. Steak.

Beeren. Berries.

Birnen. Pears.

Biskuit. Biscuits.

Blätterkohl. Kale.

Blaubeeren. Huckleberries. Blueberries.

Blumenkohl. Cauliflower.

Bohnen. Beans.

Getrocknete Bohnen. Navy beans.

Grüne Bohnen. String-beans.

Grüne Bohnen-Kerne. Young green beans.

Lima-Bohnen. Lima beans.

Wachs-Bohnen. Wax beans.

Welsche Bohnen. Kidney-beans.

Bonbons. Candy.

Braten. Roast.

Brokoli. Broccoli.

Brombeeren. Blackberries.

Bröschen. Sweetbread.

Kalbsbröschen. Calf's sweetbread.

Brot. Bread.

Frisches Brot. New bread.

Hausbrot. Selbstgebackenes Brot. Home-made bread.

Roggenbrot. Rye bread.

Schwarzbrot. Brown (rye) bread.

Weissbrot. White bread.

Geröstetes Brot. Toast.

Brötchen. Rolls.

Brunnenkresse. Watercress.

Brust. Bruststück. Breast (*von Geflügel, Lamm,* etc.). Brisket (*von Ochsen*).

Buchweizen. Buckwheat.

Butter. Butter.

Gesalzene Butter. Salt butter.

Kochbutter. Cooking butter.

Buttermilch. Buttermilk.

C

Cayennepfeffer. Chilies.

Cedrat. Citron.

Citronat. Candied lemon peel (*Limone*).

Candied citron (*Cedrat*).

Citrone. 1—Lemon (*Limone*). 2—Citron (*Cedrat*).

Citronensaft. Lemon juice.

Citronenschale. Lemon peel.

Citronen-Extrakt. Lemon extract.

D

Datteln. Dates.

Dessert. Dessert.

Dillgurken. Dill pickles.

E

Eier. Eggs.

Eigelb. Yolks.

Eiweiss. Egg whites.

Eierpflanze. Eggplant.

Eingemachtes. Jam. Preserves.

Eiscreme. Ice cream.

Endivien. Endive.

Ente. Duck.

Wildente. Wild duck.

Erbsen. Peas.

Getrocknete geschälte Erbsen. Split peas.

Grüne Erbsen. Green peas.

Erdbeeren. Strawberries.

Erdbeerkuchen. Strawberry shortcake.

Erdnüsse. Peanuts.

Essig. Vinegar.

Äpfelweinessig. Cider vinegar.

Malzessig. Malt vinegar.

Weinessig. Wine vinegar.

Estragon. Tarragon.

Extrakt. Extract.

F

Fadennudeln. Vermicelli.

Fasan. Pheasant.

Feigen. Figs.

Fett. Fat.

Fisch Fish.

Meerfisch. Salt-water fish.

Süsswasserfisch. Fresh-water fish.

Fleisch. Meat.

Fleischbrühe. Broth.

Fleischextrakt. Meat extract.

Rindfleisch-Extrakt. Beef extract.

Flügel. Wing.

Flusskrebs. Crayfish.

Forelle. Trout.

Froschschenkel. Frogs' legs.

Frucht. Fruit.

Getrocknete Frucht. Dried fruit.

Kandierte Frucht. Candied fruit.

Füllsel. Füllung. Stuffing.

G

Gans. Goose.

Junge Gans. Gosling.

Gänseleber. Goose liver.

Garneelen. Shrimps. Prawns.

Garnierung. Garnishing.

Geflügel. Poultry.

Gefrorenes. Ice (*Himbeer-Eis, etc.*). Ice cream (*Eiscreme*).

Gehirn. Brains.

Gelatine. Gelatin.

Gelee. Jelly.

Gemüse. Vegetables.

Grüne Gemüse. Green vegetables. Greens.

Gerste. Barley.

Gewürz. Spice.

Gewürznelken. Cloves.

Glasur aus Zucker. Icing.

Gombo. Gumbo. Okra.

Granatapfel. Pomegranate.

Grünzeug. Greens. Green vegetables.

Guava. Guava.

Gurken. Cucumbers.

Eingemachte Gurken. Essig-Gurken. Pickled cucumbers.

Kleine Essig-Gurken. Gherkins

H

Hafergrütze. Oatmeal.

Hammelfleisch. Mutton.

Hase. Hare.

- **Haselnüsse.** Hazel-nuts.
- **Haut.** Skin.
- **Hefe.** Yeast.
- **Heidelbeeren.** Huckleberries. Blueberries.
- **Hering.** Herring.
  - *Geräucherter Hering.* Kippered herring. Smoked herring. Bloater (*Englischer*).
  - *Salzhering.* Salt herring.
  - *Marinierter Hering.* Pickled herring.
- **Herz.** Heart.
- **Himbeeren.** Raspberries.
- **Hinterviertel.** Hindquarter.
- **Holzäpfel.** Crab-apples.
- **Honig.** Honey.
  - *Honigwaben.* Honeycomb.
- **Hüfte.** Haunch.
- **Huhn.** Hen. Chicken.
  - *Junges Huhn.* Spring chicken.
  - *Brathuhn.* Roasting chicken.
- **Hühnerklein.** Giblets.
- **Hummer.** Lobster.

I

- **Ingwer.** Ginger.
  - *Ingwer-Ale.* Ginger ale.

J

- **Jerusalem-Artischocke.** Jerusalem artichoke.
- **Johannisbeeren.** Currants (fresh).
- **Johannisbrot.** Carob-bean. St. John's Bread.

K

- **Kabeljau.** Codfish.
- **Kaffee.** Coffee.
  - *Kaffeebohnen.* Whole coffee.
  - *Gebrannter Kaffee.* Roasted coffee.
  - *Gemahlener Kaffee.* Ground coffee.
- **Kakao.** Cocoa.
- **Kalbfleisch.** Veal.
  - *Kalbshirn.* Calf's brains.
  - *Kalbskopf.* Calf's head.
  - *Kalbsleber.* Calf's liver.
- **Kaldaunen.** Tripe.
- **Kammuschel.** Scallops.
- **Kanehl.** Cassia.
- **Kaninchen.** Rabbit.
- **Kantalupe.** Cantaloupe.
- **Kapaun.** Capon.
- **Kapern.** Capers.
- **Kardamom.** Cardamom.
- **Karotten.** Carrots.
- **Kartoffeln.** Potatoes.
- **Käse.** Cheese.
  - *Geriebener Käse.* Grated cheese.
  - *Rahmkäse.* Cream cheese.
- **Käsekuchen.** Cheese cake.
- **Käselab.** Rennet.
- **Kastanien.** Chestnuts.
- **Kaviar.** Caviar.
- **Keule.** Leg (*Schenkel*). Round (*Quer aus der Keule geschnittene Scheibe.*)
- **Kirschen.** Cherries.
- **Knoblauch.** Garlic.
  - *Knoblauchzehe.* Clove of garlic.
- **Knochen.** Bone.
- **Kohl.** Cabbage.
  - *Kohlsalat.* Cole slaw.
- **Kohlensäurehaltige Wasser.** Carbonated waters. Soda-water.
- **Kohlensaures Natron.** Carbonate of soda.
- **Kohlrabi.** Kohlrabi.
- **Kokosnuss.** Coconut.
- **Kopf.** Head.
- **Kopfsalat.** Lettuce.
- **Koriander.** Coriander.
- **Korinthen.** Currants (dried).
- **Kornstärke.** Cornstarch.
- **Kotelett.** Cutlet.
- **Krabbe.** Crab.
  - *Weichschalige Krabbe.* Soft-shell crab.
- **Krauskohl.** Kale.
- **Kraut.** Cabbage.
- **Kräuter.** Herbs.
  - *Feine Kräuter. Gewürzkräuter. Küchenkräuter.* Fine herbs. Sweet herbs.
- **Kresse.** Cress.
- **Kuchen.** Cake.
- **Kümmelsame.** Caraway-seed.
- **Kürbis.** Pumpkin.

L

- **Laberdan.** Salt cod.
- **Lachs.** Salmon.
- **Laib.** Loaf.
- **Lake.** Brine.
- **Lambertsnüsse.** Filberts.
- **Lamm.** Lamb.
  - *Milchlamm.* Spring lamb.
- **Lauch.** Leeks.
- **Leber.** Liver.
- **Lendenstück.** Loin. Tenderloin.
- **Limette.** Lime.
- **Limonade.** Lemonade.
- **Limensaft.** Lime juice.
- **Linsen.** Lentils.
- **Löwenzahn.** Dandelion.

M

- **Magen.** Stomach. Gizzard (*von Geflügel*).
- **Maifisch.** Shad.
- **Mais.** Corn (Indian). Maize.
  - *Maisgries.* Farina (corn).
  - *Maismehl.* Cornmeal. Indian meal.
  - *Maisstärke.* Cornstarch.
  - *Weisser Mais Gries. Grob gemahlener Mais.* Hominy.
- **Makaroni.** Macaroni.
- **Makrele.** Mackerel.
  - *Salz-Makrele.* Salt mackerel.
- **Makronen.** Macaroons.
- **Mandeln.** Almonds.
- **Mangofrucht.** Mango.
- **Mark.** Marrow.
  - *Markknochen.* Marrow-bone.
- **Marmelade.** Marmalade (*Eingemachte Orangen*). Jam.
- **Maronen.** Chestnuts.
- **Marzipan.** Marchpane.
- **Maulbeeren.** Mulberries.
- **Meerrettich.** Horseradish.
- **Mehl.** Flour.
- **Meiran.** Marjoram (sweet).
- **Melasse.** Molasses.
- **Melone.** Melon.
  - *Bisam Melone.* Cantaloupe. Muskmelon.
- **Melonenkürbis.** Squash.
- **Milch.** Milk.
  - *Condensirte Milch.* Condensed milk.
- **Milch (der Fische).** Roe (soft). Milt.
- **Mineral-Wasser.** Mineral water.
- **Minze.** Mint.
- **Mispel.** Medlar.
- **Mohrrüben.** Carrots.
- **Moor-Huhn.** Grouse.
- **Mostrich.** Mustard.
- **Muscheln.** Mussels. Clams.
- **Muskatblüte.** Mace.
- **Muskatnuss.** Nutmeg.
- **Muss.** Sauce.

N

- **Nachtisch.** Dessert.
- **Nektarine.** Nectarine.
- **Nelkenpfeffer.** Allspice.
- **Niere.** Kidney.
- **Nudeln.** Noodles.
- **Nüsse.** Nuts.

O

- **Obst.** Fruit.
- **Ochra.** Okra.
- **Ochsenschwanz.** Oxtail.
- **Ochsenzunge.** Ox-tongue.
- **Öl.** Oil.
- **Oliven.** Olives.
  - *Olivenöl.* Olive oil.
- **Orangen.** Oranges.

P

- **Paradiesapfel.** Tomato.
- **Paranüsse.** Brazil-nuts.
- **Pastete.** Pie. Patty (*Klein*).
- **Pastinake.** Parsnips.
- **Perlhuhn.** Guinea-fowl.
- **Petersilie.** Parsley.
- **Pfeffer.** Pepper.
  - *Weisser Pfeffer.* White pepper.
  - *Schwarzer Pfeffer.* Black pepper.
  - *Roter Pfeffer.* Red pepper.
  - *Spanischer Pfeffer.* Cayenne pepper.
  - *Pfefferkörner.* Peppercorns.
- **Pfefferkuchen.** Gingerbread.
- **Pfefferminz.** Peppermint.
- **Pfeilwurz.** Arrowroot.
- **Pfirsiche.** Peaches.
- **Pflaumen.** Plums.
- **Pilze.** Mushrooms.
- **Pistaziennüsse.** Pistachio-nuts.
- **Plumpudding.** Plum pudding.
- **Pökelfleisch.** Corned (*oder* Salt) pork.
- **Pompelmuse.** Grapefruit.
- **Preisselbeeren.** Cranberries.

Presskopf. Head-cheese. Brawn.
Puter. Turkey.
  Junger Puter. Young turkey.

Q

Quitte. Quince.

R

Rahm. Cream.
Rebhuhn. Partridge.
Reis. Rice.
  Reismehl. Rice-flour.
Rettichen. Radishes.
Rhabarber. Rhubarb.
Rindfleisch. Beef.
  Rinderbraten. Roast beef.
  Gepökeltes Rindfleisch. Corned beef.
  Getrocknetes Rindfleisch. Dried beef.
  Gewürztes Rindfleisch. Spiced beef.
Rindsnierenfett. Suet (beef).
Rippchen. Chops. Cutlets.
Rippe. Rib.
Rogen. Roe (hard).
Roggen. Rye.
  Roggenmehl. Rye-flour.
Römischer Salat. Romaine (lettuce).
Rosenkohl. Brussels sprouts.
Rosinen. Raisins.
Rüben. Turnips.
Rücken. Rückenstück. Saddle.
Rumpfstück. Rump.
Runkelrüben. Beetroots.

S

Saft. Juice.
Sago. Sago.
Sahne. Cream.
Salat. Salad.
Salbei. Sage.
Salsify. Oyster-plant.
Salz. Salt.
Salzwasser. Brine.
Sardinen. Sardines.
Sarsaparille. Sarsaparilla.
Sassafras. Sassafras.
Sauerampfer. Sorrel.
Sauerkraut. Sauerkraut.
Savoyerkohl. Savoy cabbage.
Schalotte. Shallot.
Schaltiere. Shellfish.
Scheibe. Slice.
Schellfisch. Haddock.
  Geräucherter Schellfisch. Smoked haddock. "Finnan Haddie."
Schenkel. Haunch.
Schiffszwieback. Hard tack.
Schildkröte. Tortoise (*Fluss-*, und *Land-*). Turtle (*Meer-*).
Schinken. Ham.
Schlegel. Leg.
Schnecken. Snails.
Schnepfe. Snipe.
Schnitte. Slice.
Schokolade. Chocolate.
Scholle. Sole.
Schulter. Shoulder.
Schwanzstück. Rump.
Schwartenmagen. Head-cheese. Brawn.
Schwein. Pig.
  Schweinefleisch. Pork.
  Frisches Schweinefleisch. Fresh pork.
  Schweinerippchen. Spare-ribs.
  Schweinszunge. Pig's tongue.
  Milchschwein. Sucking pig.
Schweineschmalz. Lard.
Seezunge. Sole.
Sellerie. Celery.
Senf. Mustard.
Sirup. Sirup.
Soda. Soda.
Spanferkel. Sucking pig.
Spargel. Asparagus.
  Grüner Spargel. Green asparagus.
  Weisser Spargel. White asparagus.
  Spargelköpfe. Asparagus tips.
Spargelkohl. Broccoli.
Speck. Bacon.
  Speckscheiben. Rasher of bacon.
Speiseöl. Sweet oil.
Spinat. Spinach.
Stachelbeeren. Gooseberries.
Steckrüben. Turnips.
Steinbutt. Turbot.
Stockfisch. Dried cod.
Stör. Sturgeon.
Sukkade. Candied citron.
Suppe. Soup.
Süsse Kartoffeln. Sweet-potatoes.
Süssholz. Licorice.
Süssigkeiten. Candy. Sweets.

T

Talg. Suet (mutton).
Tapioka. Tapioca.
Taube. Pigeon.
  Junge Taube. Squab.
Thee. Tea.
Thunfisch. Tunny-fish.
Thymian. Thyme.
Tomate. Tomato.
Torte. Tart.
Trauben. Grapes.
  Traubensaft. Grape juice.
Trüffeln. Truffles.
Truthahn. Turkey.
Tunke. Sauce. Gravy (*Fleischsaft*).

V

Vanille. Vanilla.
Venusmuscheln. Hard clams.
Vorderviertel. Forequarter.

W

Wachtel. Quail.
Waffeln. Waffles.
Waldhuhn. Grouse.
Wallnüsse. Walnuts.
Wasser. Water.
Wassermelone. Watermelon.
Weichmuscheln. Soft clams.
Weizen. Wheat.
  Weizengries. Farina (wheat).
  Weizenmehl. Wheat-flour.
Wildbret. Venison (*Hirschfleisch*). Game (*Alles Wild*).
Wildgeflügel. Game-birds.
Wurst. Sausage.
Würze. Seasoning.

Z

Zichorie. Chicory.
Zimmt. Cinnamon.
Zucker. Sugar.
  Brauner Zucker. Brown sugar.
  Körniger Zucker. Granulated sugar.
  Puder-Zucker. Powdered sugar.
  Stücken-Zucker. Lump sugar.
Zuckerguss. Icing. Frosting.
Zuckerwerk. Candy.
Zunge. Tongue.
Zwieback. Zwieback. Biscuits.
Zwiebeln. Onions.

DIZIONARIO ITALIANO-INGLESE

A

- **Acciughe.** Anchovies.
- **Acero, Sciroppo di.** Maple-sirup.
- **Acero, Zucchero di.** Maple-sugar.
- **Aceto.** Vinegar.
  - *Aceto d'orzo.* Malt vinegar.
  - *Aceto di sidro.* Cider vinegar.
  - *Aceto di vino.* Wine vinegar.
- **Acetosa.** Sorrel.
- **Acqua.** Water.
  - *Acque gasose.* Carbonated waters. Soda-water.
  - *Acque minerali.* Mineral waters.
- **Aglio.** Garlic.
- **Agnello.** Lamb.
  - *Agnello di latte.* Spring lamb.
- **Ala.** Wing.
- **Albicocche.** Apricots.
- **Albumi.** Egg whites.
- **Amaretti.** Macaroons.
- **Amido di grano (saraceno).** Cornstarch.
- **Ananasso.** Pineapple.
- **Anca.** Haunch (*quarto di dietro —di selvaggiume*).
- **Anguilla.** Eel.
- **Anice.** Anise.
- **Animella.** Sweetbread.
  - *Animella di vitello.* Calf's sweetbread.
- **Anitra.** Duck.
  - *Anitra selvatica.* Wild duck.
- **Aranci.** Oranges.
  - *Conserva di aranci.* Marmalade.
- **Aringa.** Herring.
  - *Aringa affumicata.* Kippered herring. Smoked herring. "Bloaters" (*Inglese*).
  - *Aringa marinata.* Pickled herring.
- **Arrosto.** Roast.
- **Arrowroot.** Arrowroot.
- **Artemisia.** Tarragon.
- **Asparagi.** Asparagus.
  - *Asparagi bianchi.* White asparagus.
  - *Asparagi verdi.* Green asparagus.
  - *Punte d'asparagi.* Asparagus tips.
- **Astaco.** Lobster.
- **Avellane.** Filberts.
- **Avena, Farina di.** Oatmeal.

B

- **Baccalà.** Codfish.
  - *Baccalà salato.* Salt cod.
  - *Baccalà secco.* Dried cod.
- **Bacche.** Berries.
- **Bacche di mortella.** Cranberries.
- **Banani.** Bananas.
- **Barbabietole.** Beetroots.
- **Batate.** Sweet-potatoes.
- **Beccaccino.** Snipe.
- **Biscotti. Biscottini.** Biscuits.
- **Bistecca. Braciuola.** Steak.
- **Broccoli.** Broccoli.
- **Broccoli di Brusselle.** Brussels sprouts.
- **Brodo.** Broth.
- **Budino Inglese.** Plum pudding.
- **Burro.** Butter.
  - *Burro per cuocere.* Cooking butter.
  - *Burro salato.* Salt butter.

C

- **Cacao.** Cocoa.
- **Caffè.** Coffee.
  - *Caffè in grani.* Whole coffee.
  - *Caffè macinato.* Ground coffee.
  - *Caffè tostato.* Roasted coffee.
- **Caglio.** Rennet.
- **Cannella.** Cinnamon.
- **Capperi.** Capers.
- **Cappone.** Capon.
- **Carciofi.** Artichokes.
  - *Fondi* (*o torsi*) *di carciofo.* Artichoke bottoms.
- **Cardamomo.** Cardamom.
- **Carne.** Meat.
  - *Essenza di carne.* Meat extract.
- **Carote.** Carrots.
- **Carruba.** Carob-bean.
- **Carvi, Seme di.** Caraway-seed.
- **Cassia (corteccia).** Cassia.
- **Castagne.** Chestnuts.
- **Castrato.** Mutton.
- **Caviale.** Caviar.
- **Cavolo.** Cabbage.
  - *Cavoli salati.* Sauerkraut.
  - *Insalata di cavolo.* Cole slaw.
- **Cavolo cappuccio.** Savoy cabbage.
- **Cavolo fiore.** Cauliflower.
- **Cavolo rapa.** Kohlrabi.
- **Cavolo riccio.** Kale.
- **Cedrato candito.** Candied citron.
- **Cervella.** Brains.
- **Cetriuoli.** Cucumber.
  - *Cetriuoli sotto aceto.* Pickled cucumbers.
  - *Cetriuoli sotto aneto.* Dill pickles.
  - *Cetriuolini* (*all 'aceto*). Gherkins.
- **Cheppia.** Shad.
- **Chicche.** Candy.
- **Cialde.** Waffles.
- **Cicoria.** Chicory.
- **Ciliegie.** Cherries.
- **Cioccolata.** Chocolate.
- **Cipolle.** Onions.
- **Cocomero.** Watermelon.
- **Coda di bue.** Oxtail.
- **Collo.** Neck. Rack (v. 341).
- **Condimento.** Seasoning.
- **Confetti.** 1 — Candy (*dolci, chicche*). 2—Jam (*frutta indolcite collo zucchero sciroppato e cotto*).
- **Confettura.** Jam (v. *Confetti* 2).
- **Coniglio.** Rabbit.
- **Conserva.** Jam. Preserves.
- **Coriandolo.** Coriander.
- **Coscia.** Leg.
- **Costola.** Rib.
- **Costolette.** Cutlets. Chops.
- **Crauti.** Sauerkraut.
- **Crema.** Cream.
- **Crema ghiacciata.** Ice cream.
- **Crescione.** Cress.
  - *Crescione di riviera.* Watercress.
- **Crosta di zucchero.** Icing. Frosting.
- **Crostata.** Pie. Tart (*piccolo*).
- **Culatta.** Rump.
- **Cuore.** Heart.

D

- **Datteri.** Dates.
- **Datteri di mare.** Mussels.
- **Dolci.** Candy. Sweets.

E

- **Elianto tuberoso.** Jerusalem artichoke.
- **Erbaggio.** Herbs.
  - *Erbe fini. Erbe aromatiche.* Fine herbs. Sweet herbs.
- **Essenza. Estratto.** Extract.

F

- **Fagiano.** Pheasant.
- **Fagiuoli.** Beans. Kidney-beans.

Fagiuoli giovani. Young green beans.
Fagiuoli di Lima. Lima beans.
Fagiuoli secchi. Navy beans.
Fagiuoletti. Fagiuolini. String-beans.
Fagiuolini gialli. Wax beans.
Farina di frumento. Wheat-flour.
Farina di segala. Rye-flour.
Farina saracena. Cornmeal. Indian meal. Farina (corn).
Fave. Beans.
Favo. Honeycomb.
Fegato. Liver.
Fetta. Slice.
Fetta sottile di lardo. Rasher of bacon.
Fichi. Figs.
Filetto. Tenderloin.
Focaccia. Cake.
Formaggio. Cheese.
Formaggio di crema. Formaggio grasso. Cream cheese.
Formaggio grattato. Grated cheese.
Focaccia di formaggio. Cheese cake.
Fragole. Strawberries.
Focaccia di fragole. Strawberry shortcake.
Frattaglie. Giblets.
Frumento. Wheat.
Frutta. Fruit.
Frutta candita. Candied fruit.
Frutta secca. Dried fruit.
Funghi. Mushrooms.

G

Galletta. Hard tack.
Galletto. Spring chicken.
Gallina. Hen.
Gallina di faraone. Guinea-fowl.
Gallo di montagna. Grouse.
Gamba. Leg.
Gamberetti di mare. Prawns.
Gamberettini. Shrimps.
Gambero d'acqua dolce. Cray-fish.
Gambero marino. Lobster.
Garofani. Cloves.
Gelatina. Gelatin. Jelly (*gelatina di frutti.*)
Gelato. Ice cream. Ice (*dessert*).
Ghiaccio. Ice.
Giambone. Ham.
Granchio. Crab.
Granchio a guscio molle. Soft-shell crab.
Granchiolini. Prawns. Shrimps.
Grano saraceno. Corn (Indian).
Grasso. Fat.
Grasso strutto (di porco). Lard.
Guajava. Guava.
Guarnizione. Garnishing.

I

Indivia. Endive.
Insalata. Salad.

L

Lamponi. Raspberries.
Lardo. Bacon (*grasso di porco, salato e affumicato*). Lard (*grasso strutto*).
Lardone. Corned (*o* Salt) pork.
Latte. Milk.
Latte condensato. Condensed milk.
Latte di pesce. Roe (soft). Milt.
Lattuga. Lettuce.
Lattuga romana. Romaine (lettuce).
Legumi. Vegetables.
Lenticchie. Lentils.
Lepre. Hare.
Lievito. Yeast.
Lima (*piccolo limone*). Lime.
Agro di lima. Lime juice.
Limonata. Lemonade.
Limone. Lemon.
Agro di limone. Sugo di limone. Lemon juice.
Essenza di limone. Estratto di limone. Lemon extract.
Scorza di limone. Lemon peel.
Scorza di limone candita. Candied lemon peel.
Lingua. Tongue.
Lombo. Loin.
Lumache. Snails.

M

Maccheroni. Macaroni.
Macerone. Dandelion.
Macis. Mace.
Magiorana (dolce). Marjoram (sweet).
Majale. Pig.
Mandorle. Almonds.
Mango. Mango.
Manzo. Beef.
Manzo aromatico. Spiced beef.
Manzo arrosto. Roast beef.
Manzo salato. Corned beef.
Manzo seccato. Dried beef.
Lingua di manzo. Ox-tongue.
Marmellata. Marmalade (*in generale, conserva d'aranci*).
Marzapane. Marchpane.
Mela cotogna. Quince.
Melanzana. Eggplant.
Melassa. Molasses.
Mele. Apples.
Mele da cuocere. Cooking apples.
Mele da mangiare. Eating apples.
Mele secche. Dried apples.
Mele selvatiche. Crab-apples.
Melegrana. Pomegranate.
Mellone. Melon.
Mellone muschiato. Muskmelon.
Meloncini. Cantaloupe. Muskmelon.
Menta. Mint.
Menta pepata. Peppermint.
Merluzzo. Haddock.
Merluzzo fumato. Smoked haddock. "Finnan Haddie."
Midollo. Marrow.
Osso midolloso. Marrow-bone.
Miele. Honey.
Mirtilli. Huckleberries. Blueberries.
More. Mulberries.
More di rovo. Blackberries.
Mostarda. Mustard.

N

Nespola. Medlar.
Nocciuole. Filberts. Hazelnuts.
Noci. Walnuts.
Noce di cocco. Coconut.
Noci del Brasile. Brazil-nuts.
Noce moscata. Nutmeg.
Noci di pistacchio. Pistachios.

O

Oca. Goose.
Fegato d'oca. Goose liver.
Ocra. Okra.
Olio. Oil.
Olio da tavola. Sweet oil.
Olive. Olives.
Olio d'oliva. Olive oil.
Orzo. Barley.
Osso. Bone.
Ostriche. Oysters.

P

Pampelimossa. Grapefruit.
Pane. Bread. Loaf of bread.
Pane bianco. White bread.
Pane bruno. Brown, or Graham, bread.
Pane casalingo. Home-made bread.
Pane fresco. New bread.
Pane di segala. Rye bread.
Pane abbrustolato. Toast.
Pan pepato. Gingerbread.
Panino. Roll.
Papero. Gosling.
Pasticcetto. Patty.
Pasticceria. Pastry.
Pasticcio. Pie.
Pastinache. Parsnips.
Patate. Potatoes.
Patate dolci. Sweet-potatoes.
Pelle. Skin.
Pepe. Pepper.
Pepe bianco. White pepper.
Pepe nero. Black pepper.
Pepe rosso. Red pepper.
Pepe di Caienna. Cayenne pepper.
Grani di pepe. Peppercorns.
Peperoni comuni. Sweet peppers.
Peperoni di Guinea. Chilies.
Pera avvocato. Avocado (alligator-pear).
Pere. Pears.
Pernice. Partridge.
Pesca. Peach.
Pesca noce. Nectarine.
Pesce. Fish.
Pesce d'acqua dolce. Fresh-water fish.
Pesce di mare. Salt-water fish.
Pesce di scorza. Pesce con guscio. Shellfish.

Pettini (duri). Clams (hard).
Pettini (soffici). Clams (soft).
Petto. Brisket (*di buc. ecc.*). Breast (*d'agnello o d'uccello*).
Pettonchi. Scallops.
Piccione. Pigeon.
Piccione novello. Piccioncello. Squab.
Pimento, Coccola di. Allspice.
Piselli. Peas.
Piselli spaccati. Split peas.
Piselli verdi. Green peas.
Pistacchi di terra. Peanuts.
Pollame. Poultry.
Pollo. Chicken.
Pollastrino. Spring chicken.
Pollo per arrosto. Roasting chicken.
Polvere crescente. Baking powder.
Pomo d'oro. Tomato.
Porcellino lattante. Sucking pig.
Porco. Pig (*il majale*). Pork (*la carne di majale*).
Porco fresco. Fresh pork.
Porco salato. Corned (*o* Salt) pork.
Lingua di porco. Pig's tongue.
Costole di porco. Spare-ribs.
Porri. Leeks.
Pospasto (dessert). Dessert.
Prezzemolo. Parsley.
Prosciutto. Ham.
Prugne. Plums.
Prugne secche. Prunes.

Q

Quaglia. Quail.
Quarto davanti. Forequarter.
Quarto di dietro. Hindquarter.

R

Rabarbaro. Rhubarb.
Rafano. Ramolaccio. Horseradish.
Ranocchie, Gambe di. Frogs' legs.
Rape. Turnips.
Ravanelli. Radishes.
Ribes. Currants.
Ribes uva spina. Gooseberries.
Ripieno. Stuffing.
Riso. Rice.
Farina di riso. Rice-flour.
Rognone. Kidney.
Rombo. Turbot.
Rostbif. Roast beef.
Rotella (di manzo). Round (of beef).

S

Saggina. Buckwheat.
Sago. Sago.
Sale. Salt.
Salmoja. Brine.
Salmone. Salmon.
Salsa. Sauce.
Salsapariglia. Sarsaparilla.
Salsiccia. Sausage.
Salvia. Sage.
Sardine. Sardines.
Sassafrasso. Sassafras.
Scalogno. Shallot.
Schiena. Saddle.
Sciroppo. Sirup.
Scorzonera. Oyster-plant.
Sedano. Celery.
Segala. Rye.
Selvaggiume. Game (*qualsisia animale, quadrupede o volatile, preso alla caccia*). Venison (*carne di cervi*).
Semolino. Farina (wheat).
Senapa. Mustard.
Sgombro. Mackerel.
Sgombro salato. Salt mackerel.
Sidro. Cider.
Siero di latte. Buttermilk.
Soda. Carbonato di soda. Soda. Carbonate of soda.
Sogliuola (pesce). Sole.
Sorbetto. Ice.
Sourcrout. Sauerkraut.
Spalla. Shoulder.
Spezie. Spice.
Spinacci. Spinach.
Stomaco. Stomach.
Storione. Sturgeon.
Succo. Sugo. Juice.
Sugna. Suet.

T

Tacchino. Turkey.
Tacchino giovane. Young turkey.
Taglio. Joint.
Tapioca. Tapioca.
Targone. Tarragon.
Tartaruga. Tortoise (*tartaruga di terra e di fiume*). Turtle (*tartaruga di mare*).
Tartufi. Truffles.
Te. Tea.
Testa. Head.
Timo. Thyme.
Tomata. Tomato.
Tonno. Tunny-fish.
Torta. Pie (*torta di mele, ecc.*). Tart (*piccolo*). Pudding (*torta di riso, ecc.*).
Trippa. Tripe.
Trota. Trout.
Tuorli. Yolks.

U

Uova di pesce. Roe (hard).
Uova. Eggs.
Bianchi d'uova. Whites (of eggs).
Uva. Grapes.
Sugo d'uva. Grape juice.
Uva crespina. Gooseberries.
Uva passa. Raisins.
Uva passa di Corinto. Currants (dried).

V

Vaniglia. Vanilla.
Ventriccio. Ventriglio. Gizzard.
Verdura. Green vegetables. Greens.
Vermicelli. Vermicelli.
Vitello. Veal.
Cervella di vitello. Calf's brains.
Fegato di vitello. Calf's liver.
Testa di vitello. Calf's head.

Z

Zenzero. Ginger.
Birra di zenzero. Ginger ale.
Zucca. Squash.
Zucca melopopone. Pumpkin.
Zucchero. Sugar.
Zucchero in grano. Granulated sugar.
Zucchero di mascarado. Brown sugar.
Zucchero in pezzetti pani. Lump sugar.
Zucchero polverizzato. Powdered sugar.
Zuppa. Soup.

DICCIONARIO ESPAÑOL-INGLÉS

A

Acedera. Sorrel.
Aceite. Oil.
  Aceite de comer. Sweet oil.
  Aceite de oliva. Olive oil.
Aceitunas. Olives.
Acemita. Brown (*o* Graham) bread.
Achicoria. Chicory.
Aderezo. Garnishing.
Agachadiza. Snipe.
Agua. Water.
Aguacate. Avocado (alligator-pear).
Aguas gaseosas. Carbonated waters.
Aguas minerales. Mineral waters.
Aguaturma. Jerusalem artichoke.
Ají. Chilies.
Ajo. Garlic.
Ala. Wing.
Albaricoques. Apricots.
Alcachofas. Artichokes.
  Corazones de alcachofa. Artichoke bottoms.
Alcaparras. Capers.
Alcaravea. Caraway-seed.
Algarroba. Carob-bean.
Almejas. Clams.
  Almejas duras. Hard clams.
  Almejas suaves. Soft clams.
Almendrados. Macaroons.
Almendras. Almonds.
Alosa. Shad.
Anca. Haunch.
Anchoas. Anchovies.
Anguila. Eel.
Anís. Anise.
Ansaron. Gosling (or green goose).
Apio. Celery.
Arándano. Huckleberries. Blueberries.
Arándanos rojos. Cranberries.
Arenque. Herring.
  Arenque en escabeche. Pickled herring.
  Arenque ahumado. Kippered (*o* Smoked) herring. "Bloater" (*Inglés*).
  Arenque salado. Salt herring.
Arroz. Rice.
Arrurruz. Arrowroot.
Asado. Roast.
Ascalonia. Shallot.
Atún. Tunny-fish.
Avellanas. Filberts. Hazel-nuts.
Aves de corral. Poultry.
Azúcar. Sugar.
  Azúcar moreno. Brown sugar.
  Azúcar granulado. Granulated sugar.
  Azúcar en terrones. Lump sugar.
  Azúcar en polvo. Powdered sugar.
Azúcar de arce. Maple-sugar.

B

Bacalao. Codfish.
  Bacalao seco. Dried cod.
  Bacalao salado. Salt cod.
Bananas. Bananas.
Barquillos. Waffles.
Batatas. Sweet-potatoes.
Bayas. Berries.
Becardón. Snipe.
Berenjena. Eggplant.
Berro. Watercress.
Biftec. Steak.
Bizcochos. Biscuits.
Brécol. Broccoli.
Bretón. Kale.
Bróculi. Broccoli.

C

Cabeza. Head.
  Cabeza de ternera. Calf's head.
Cacahuetes. Peanuts.
Cacao. Cocoa.
Café. Coffee.
  Café en granos. Whole coffee.
  Café molido. Ground coffee.
  Café tostado. Roasted coffee.
Calabaza. Pumpkin. Squash.
Caldo. Broth.
Camarones. Prawns. Shrimps.
Canela. Cinnamon.
Cangrejo. Crab.
  Cangrejo blando. Soft-shell crab.
Cantalú (melón). Cantaloupe.
Capón. Capon.
Caracoles. Snails.
Cardamomo. Cardamom.
Carne. Meat.
Carne de carnero. Mutton.
Carne de cordero. Lamb.
Carne de puerco. Pork.
  Carne de puerco salada. Corned (*o* Salt) pork.
Carne de ternera. Veal.
Carne de vaca. Beef.
  Carne de vaca condimentada. Spiced beef.
  Carne seca de vaca. Dried beef.
Carne de venado. Venison.
Casia (corteza). Cassia (bark).
Castañas. Chestnuts.
Caviar. Caviar.
Caza. Game (*aves y reses*).
Cebada. Barley.
Cebollas. Onions.
Cecina. Corned beef.
Centeno. Rye.
Cerezas. Cherries.
Chalote. Shallot.
Chiles. Chilies.
Chirivía. Parsnips.
Chocolate. Chocolate.
Chuletas. Chops. Cutlets.
Ciruelas. Plums.
Ciruelas pasas. Prunes.
Claras de huevo. Egg-whites.
Clavos de especia. Cloves.
Cocos. Coconut.
Codorniz. Quail.
Cohombro. Cucumber.
Col. Cabbage.
  Col ácida. Sauerkraut.
  Ensalada de col. Cole slaw.
Coliflor. Cauliflower.
Colnabo. Kohlrabi.
Col rizada. Savoy cabbage.
Compota. Jam.
Condimento. Seasoning.
Conejo. Rabbit.
Confites. Candy.
Conservas. Preserves.
Corazón. Heart.
Corderillo. Spring lamb.
Corteza de limón confitada. Citron peel (candied).
Costillas de cerdo. Spare-ribs.
Cotufa. Jerusalem artichoke.
Crema. Cream.
Cuajada. Curd.
Cuajo. Rennet.
Cuarto de una res. Joint (of meat).
  Cuarto delantero. Forequarter.
  Cuarto trasero. Hindquarter.
Cuello. Neck.
Culantro. Coriander.

D

Dátiles. Dates (fruit).
Diente de león. Dandelion.
Dulces. Candy.
Duraznos. Peaches.

E

Encurtidos con eneldo. Dill pickles.
Endibia. Endive.
Ensalada. Salad.
Espaldilla. Shoulder.
Espárragos. Asparagus.
Espárragos verdes. Green asparagus.
Espárragos blancos. White asparagus.
Puntas de espárrago. Asparagus tips.
Especia. Spice.
Espinaca. Spinach.
Estómago. Stomach.
Estragón. Tarragon.
Esturión. Sturgeon.
Extracto. Extract.
Extracto de carne. Meat extract.

F

Faisán. Pheasant.
Fideos. Vermicelli.
Filete (solomillo). Tenderloin.
Frambuesas. Raspberries.
Fresas. Strawberries.
Pastel de fresas. Strawberry shortcake.
Frijoles. Beans. Kidney-beans.
Frutas. Fruit.
Frutas confitadas. Candied fruit.
Frutas secas. Dried fruit.

G

Galleta de munición. Hard tack.
Galletas. Biscuits.
Gallina. Hen.
Ganso. Goose.
Gelatina. Gelatin.
Gordura. Fat.
Granada. Pomegranate.
Grasa. Fat.
Grosellas (frescas). Currants (fresh).
Grosellas (uva espina). Gooseberries.
Guaco. Grouse.
Guayaba. Guava.
Guindilla (Pimento de Indias). Allspice.
Guisantes. Peas.
Guisantes verdes. Green peas.
Guisantes partidos. Split peas.

H

Habas. Lima beans.
Habichuelas. Beans. Kidney-beans.
Habichuelas verdes. String-beans.
Harina de arroz. Rice-flour.
Harina de avena. Oatmeal.
Harina de centeno. Rye-flour.
Harina de maíz. Cornmeal. Farina (of corn).
Harina de trigo. Wheat-flour.
Helado. Ice cream.
Hielo. Ice.
Hierbas. Herbs.
Hierbas finas. Fine herbs. Sweet herbs.
Hierbas aromáticas. Aromatic herbs.
Hígado. Liver.
Hígado de ganso. Goose liver.
Hígado de ternera. Calf's liver.
Higos. Figs.
Hongos. Mushrooms.
Hueso. Bone.
Hueva. Roe (hard).
Huevos. Eggs.

J

Jalea. Jelly.
Jamón. Ham.
Jarabe. Sirup.
Jarabe de arce. Maple-sirup.
Jarrete. Knuckle.
Jengibre. Ginger.
Cerveza de jengibre. Ginger ale.
Pan de jengibre. Gingerbread.
Judías. Kidney-beans.
Judías blancas secas. Navy beans.
Judías de vaina amarilla. Wax beans.
Judías tiernas. Young green beans.
Jugo. Juice.

L

Langosta. Lobster.
Langostines. Crayfish.
Leche. Milk.
Lechecilla de pez. Roe (soft). Milt.
Lechecillas. Sweetbread.
Leche condensada. Condensed milk.
Lechoncillo. Pig's tongue.
Lechuga. Lettuce.
Lechuga Romana. Romaine (lettuce).
Legumbres. Vegetables.
Lengua. Tongue.
Lengua de buey. Ox-tongue.
Lengua de puerco. Pig's tongue.
Lenguado. Sole (fish).
Lentejas. Lentils.
Levadura. Yeast.
Levadura en polvo. Baking powder.
Liebre. Hare.
Lima. Lime (fruit).
Zumo de lima. Lime juice.
Limón. Lemon.
Corteza de limón. Lemon peel.
Corteza de limón confitada. Candied lemon peel.
Esencia de limón. Lemon extract.
Zumo de limón. Lemon juice.
Limonada. Lemonade.
Lonja. Slice.
Lomo. Loin.

M

Macarela. Mackerel.
Macarela salada. Salt mackerel.
Macarrones. Macaroni.
Macis. Mace.
Maíz. Corn (Indian).
Almidón de maíz. Cornstarch.
Maíz descortezado. Samp.
Maíz molido. Hominy.
Mango (fruta). Mango.
Manteca de puerco. Lard.
Manteca de vaca. Butter.
Manteca de vaca para cocinar. Cooking butter.
Manteca de vaca salada. Salt butter.
Mantecado. Ice cream.
Mantequilla. Butter.
Manzanas. Apples.
Manzanas de cocinar. Cooking apples.
Manzanas de comer. Eating apples.
Manzanas secas. Dried apples.
Manzanas silvestres. Crab-apples.
Mariscos. Shellfish.
Mastuerzo. Cress.
Mazapán. Marchpane.
Médula. Marrow.
Hueso medular. Marrow-bone.
Mejillones. Mussels.
Mejorana. Marjoram (sweet).
Melaza. Molasses.
Melón. Melon.
Melote. Molasses.
Membrillo. Quince.
Menta. Mint.
Menudillos de aves. Giblets.
Mermelada de naranja. Marmalade (orange).
Miel. Honey.
Panal de miel. Honeycomb.
Molleja de ave. Gizzard.
Mollejas de ternera. Calf's sweetbread.
Molletes. Rolls (bread).
Mondongo-callos. Tripe.
Moras. Mulberries.
Mostaza. Mustard.

N

Nabos. Turnips.
Naranjas. Oranges.
Nata. Cream.
Níspola. Medlar.
Nueces. Nuts. Walnuts.
Nueces del Brasil. Brazil-nuts.
Nuez moscada. Nutmeg.

O

Ostras. Oysters.
Ostiones. Large oysters.

P

Paloma. Pigeon.
Pan. Bread.
Pan blanco. White bread.

Pan casero. Pan bazo. Home-made bread.
Pan de centeno. Rye bread.
Pan tierno. New bread.
Panecillos. Rolls (bread).
Papas. Potatoes.
Pasas. Raisins.
Pasas de Corinto. Currants (dried).
Pastel. Cake. Pie.
Pastelería. Pastry.
Pastelillo. Patty.
Pastinaca. Parsnips.
Pata. Leg.
Patas de rana. Frogs' legs.
Patatas. Potatoes.
Pato. Duck.
Pato silvestre. Wild duck.
Pavo. Turkey.
Pavipollo. Young turkey.
Pecho. Breast. Brisket (*de animales solamente*).
Pechuga. Breast.
Pepinillos. Gherkins.
Pepino. Cucumber.
Pepinos encurtidos. Pickled cucumbers.
Peras. Pears.
Perdiz. Partridge.
Perejil. Parsley.
Pernil. Shoulder of pork.
Pérsico. Nectarine.
Pescado. Fish.
Pescado de agua dulce. Fresh-water fish.
Pescado de mar. Salt-water fish.
Pichón. Squab.
Piel. Skin.
Pimienta. Pepper.
Pimienta blanca. White pepper.
Pimienta negra. Black pepper.
Pimentón. Red pepper.
Pimiento. Cayenne pepper.
Granos de pimienta. Peppercorns.
Pimientos frescos. Peppers (fresh).
Piña. Pineapple.
Pintada. Guinea-fowl.
Pistachos. Pistachio-nuts.
Plátanos. Bananas.
Pollo. Chicken.
Pollo para asar. Roasting chicken.
Pollo tierno. Spring chicken.
Postres. Dessert.
Pudín Inglés. Plum pudding.
Puerros. Leeks.

Q

Quesadilla. Cheese cake.
Queso. Cheese.
Queso fresco. Cream cheese.
Queso rallado. Grated cheese.
Queso de cerdo. Head cheese.
Quimbombó. Okra.

R

Rábanos. Radishes.
Rábano silvestre. Horseradish.
Rabo de buey. Oxtail.
Rebanada. Slice.
Relleno. Stuffing.
Remolachas. Beetroots.
Repollitos de Bruselas. Brussels sprouts.
Riñones. Kidney.
Róbalo. Haddock.
Róbalo ahumado. Smoked haddock. "Finnan Haddie."
Rodaballo. Turbot.
Rodaja de carne (lomo). Round (of beef).
Rosbif. Roast beef.
Ruibarbo. Rhubarb.

S

Sábalo. Shad.
Sagú. Sago.
Sal. Salt.
Salchicha. Sausage.
Salmón. Salmon.
Salmuera. Brine.
Salsa. Sauce.
Salsifí. Oyster-plant.
Salvia. Sage.
Sandía. Watermelon.
Sardinas. Sardines.
Sasafrás. Sassafras.
Sebo en rama. Suet.
Sémola. Farina (wheat).
Sesos. Brains.
Sesos de ternera. Calf's brains.
Sidra. Cider.
Soda. Soda.
Solomo. Rump.
Sopa. Soup.
Sorbete. Ice (dessert).
Suero de leche. Buttermilk.

T

Tajada. Slice.
Tallarines. Noodles.
Tapioca. Tapioca.
Tarta. Tart.
Te. Tea.
Tocino. Bacon.
Lonja de tocino. Rasher of bacon.
Tocino fresco. Fresh pork.
Tomate. Tomato.
Tomillo. Thyme.
Toronja. Grapefruit.
Tortuga (de mar). Turtle.
Tortuga de río. Fresh-water tortoise.
Tortuga de tierra. Land tortoise.
Tostada. Toast.
Trigo. Wheat.
Trigo sarraceno. Buckwheat.
Trucha. Trout.
Trufas. Truffles.
Tuétano. Marrow.

U

Uvas. Grapes.
Zumo de uvas. Grape juice.

V

Vainilla. Vanilla.
Veneras. Scallops.
Verdura. Green vegetables. Greens.
Vinagre. Vinegar.
Vinagre de malta. Malt vinegar.
Vinagre de sidra. Cider vinegar.
Vinagre de vino. Wine vinegar.

Y

Yemas (de huevo). Yolks (of eggs).
Yerbabuena. Peppermint.

Z

Zanahorias. Carrots.
Zarzamora. Blackberries.
Zarzaparrilla. Sarsaparilla.

SVENSK-ENGELSK ORDBOK

A

Alligatorpäron. Avocado (alligator-pear).
Ananas. Pineapple.
And. Duck.
Anis. Anise.
Ansjovis. Anchovies.
Apelsiner. Oranges.
Aprikoser. Apricots.
Arrowrotmjöl. Arrowroot.

B

Bakfjärding. Hindquarter.
Bakverk. Pastry.
Bananer. Bananas.
Beckasin. Snipe.
Ben. Bone. Leg (*lår*).
Betor. Beetroots.
Biffstek. Steak.
Björnbär. Blackberries.
Blomkål. Cauliflower.
Blåbär. Huckleberries. Blueberries.
Bog. Shoulder.
Bohvete. Buckwheat.
Brasilnötter. Brazil-nuts.
Bringa. Breast (*af lam och fågel*). Brisket (*af oxe*).
Brysselkål. Brussels sprouts.
Bräss. Sweetbread.
Kalfbräss. Calf's sweetbread.
Bröd. Bread.
Franskt bröd. Smör bröd. Roll.
Färskt bröd. New bread.
Groft bröd. Brown (or Graham) bread.
Hembakadt bröd. Home-made bread.
Hvetebröd. White bread.
Rågbröd. Rye bread.
Rostadt bröd. Toast.
Bröst. Breast.
Bär. Berries.
Bönor. Beans.
Bond-bönor. Lima beans.
Gröna bönor. Young green beans.
Hvita bönor. Navy beans.
Lima-bönor. Lima beans.
Skärbönor. String-beans.
Turska-bönor. Kidney-beans.
Vaxbönor. Wax beans.

C

Champinjoner. Mushrooms.
Chokolad. Chocolate.
Cider. Cider.
Cikoria. Chicory.
Citron. 1—Lemon. 2—Citron (*en stor starkt kryddad frukt af citron slägtet, hvars skal användes kanderadt* — "*Succat*").
Citronskal. Lemon peel.
Kanderat citronskal. Candied lemon peel. Candied citron.
Citronextrakt. Lemon extract.
Sur citronsaft. Lemon juice.

D

Dadlar. Dates.
Dessert. Dessert.
Dillgurkor. Dill pickles.
Dragonört. Tarragon.
Drufsaft. Grape juice.
Dufva. Pigeon.
Ung dufva. Squab.

E

Endivia. Endive.
Estragon. Tarragon.
Extrakt. Extract.

F

Fasan. Pheasant.
Fett. Fat.
Fikon. Figs.
Filbertsnötter. Filberts.
Filet. Tenderloin.
Fisk. Fish.
Insjöfisk. Fresh-water fish.
Hafsfisk. Salt-water fish.
Fjäderfä. Poultry.
Flodkräftor. Crayfish.
Fläsk. Pork.
Rökt fläsk. Bacon.
Färskt fläsk. Fresh pork.
Salt fläsk. Corned (*eller* Salt) pork.
Forell. Trout.
Framfjärding. Forequarter.
Frukt. Fruit.
Kanderad frukt. Candied fruit.
Torkad frukt. Dried fruit.
Fyllning. Stuffing.
Fågelkrås. Giblets.
Fårkött. Mutton.

G

Garnering. Garnishing.
Gelatin. Gelatin.
Gelé. Jelly.
Glace. Ice (*som frukt glace*). Ice cream (*gräddglace*).
Glasering. Glasyr. Icing. Frosting.
Granatäpple. Pomegranate.
Grape frukt. Grapefruit.
Gris. Pig.
Digris. Sucking pig.
Gristunga. Pig's tongue.
Grodben. Frogs' legs.
Grädde. Cream.
Grönsaker. Green vegetables. Greens.
Grönsalad. Lettuce.
Guavafrukt. Guava.
Gurkor. Cucumbers.
Ättiksgurkor. Saltgurkor. Pickled cucumbers.
Syltgurkor. Sweet pickled cucumbers.
Inlagda gurkor. Spiced pickled cucumbers.
Vesterås gurkor. Gherkins.
Gås. Goose.
Gåskrås. Goose giblets.
Gåsunge. Gosling.
Gåslefver. Goose liver.

H

Hafremjöl. Oatmeal.
Hafstunga. Sole.
Hallon. Raspberries.
Hals. Halsstycke. Neck.
Hare. Hare.
Hasselnötter. Hazel-nuts.
Hjärna. Brains.
Hjärta. Heart.
Honung. Honey.
Honungskaka. Honeycomb.
Hufvud. Head.
Hummer. Lobster.
Hvete. Wheat.
Hvitkål. Cabbage.
Hvitkål sallat. Cole slaw.
Hvitlök. Garlic.
Höna. Hen.
Hönsfåglar. Poultry.

I

Ingefära. Ginger.
(*Ingefärs*) *Sockerdricka.* Ginger ale.
Innanlår. Round.
Is. Ice.
Ister. Lard.

J

Johannesbröd. Carob-bean. St. John's bread.
Jordärtskocka. Jerusalem artichoke.
Jordgubbar. Strawberries.
Jordgubbstårta. Strawberry shortcake.
Jordnötter. Peanuts.
Jäst. Yeast.
Jästpulver. Baking powder.

K

Kabiljo. Codfish.
Saltat kabiljo. Salt cod.
Torkad kabiljo. Dried cod.
Kaffe. Coffee.
Kaffebönor. Whole coffee.
Brändt (eller *Rostadt*) *kaffe.* Roasted coffee.
Malet kaffe. Ground coffee.
Kaka. Cake.
Kakao. Cocoa.
Kalfhjärna. Calf's brains.
Kalfhufvud. Calf's head.
Kalfkött. Veal.
Kalflefver. Calf's liver.
Kalkon. Turkey.
Kalkonkyckling. Young turkey.
Kammussla. Scallops.
Kandering. Icing.
Kanel. Cinnamon.
Kanin. Rabbit.
Kantaloup-melon. Cantaloupe. Muskmelon.
Kapris. Capers.
Kapun. Capon.
Kardemumma. Cardamom.
Kassavagryn. Tapioca.
Kassiabark. Cassia.
Kastanjer. Chestnuts.
Kaviar. Caviar.
Kejsarsallat. Tarragon.
Kex. Biscuits. Crackers.
Klippfisk. Dried cod.
Kokosnöt. Coconut.
Kolja. Haddock.
Rökt kolja. Smoked haddock. "Finnan Haddie."
Kolsyradt natron. Soda.
Konfekt. Candy. Sweets.
Konserver. Preserves.
Korf. Sausage.
Koriander. Coriander.
Korinter. Currants (dried).
Korngryn. Barley.
Kotletter. Cutlets. Chops.
Krabba. Crab.
Krabba med mjukt skal. Soft-shell crab.
Kraftsoppa. Broth.
Krasse. Cress.
Kräftor. Crayfish.
Kräfva. Gizzard.
Kronärtskockor. Artichokes.
Kronärtskockbottnar. Artichoke bottoms.
Krusbär. Gooseberries.
Kruskål. Kale.
Krydda. Spice.
Kryddnejlikor. Cloves.
Kryddning. Seasoning.
Kryddpeppar. Allspice.
Kryddväxter. Fine herbs. Sweet herbs.
Kummin. Caraway-seed.
Kurbits. Squash.
Kvitten. Quince.
Kyckling. Spring chicken.
Kålrabbi. Kohlrabi.
Kålrötter. Turnips.
Kärnmjölk. Buttermilk.
Köksväxter. Vegetables.
Körsbär. Cherries.
Kött. Meat.
Köttextrakt. Meat extract.
Köttskifva. Steak.

L

Lamkött. Lamb.
Dilamm. Spring lamb.
Lax. Salmon.
Lefver. Liver.
Limon (*en liten citron*). Lime.
Limonsaft. Lime juice.
Limonad. Lemonade.
Linser. Lentils.
Ländstycke. Loin (*främre ländstycke*). Rump (*bakre ländstycke*).
Lår. Lårstycke. Leg. Haunch (*bakfjärding—af rådjurskött*).
Lök. Onions.
Lönnsirap. Maple-sirup.
Lönnsocker. Maple-sugar.

M

Mage. Stomach.
Maghinna. Tripe.
Majs. Corn (Indian).
Majskrossgryn. Hominy.
Majsmjöl. Cornmeal. Indian meal. Farina (corn).
Majsstärkelse. Cornstarch.
Makaroni. Macaroni.
Makrill. Mackerel.
Salt makrill. Salt mackerel.
Makron. Macaroons.
Mandel. Almonds.
Mandelbakelse. Macaroons.
Mango. Mango.
Marmelad. Marmalade.
Marsipan. Marchpane.
Maskros. Dandelion.
Matolja. Sweet oil.
Mejram. Marjoram (sweet).
Melass. Molasses.
Melon. Melon.
Mineralvatten. Mineral waters.
Mispel. Medlar.
Mjöl (fint). Flour.
Mjölk. Milk.
Kondenserad mjölk. Condensed milk.
Mjölke. Roe (soft). Milt.
Morötter. Carrots.
Mullbär. Mulberries.
Muskotblomma. Mace.
Muskott. Nutmeg.
Musslor. Mussels. Clams (*en amerikansk mussla*).
Tråg musslor. Soft clams.
Venus musslor. Hard clams.
Mynta. Mint.
Märg. Marrow.
Märgben. Marrow-bone.

N

Nektarin. Nectarine.
Njure. Kidney.
Njurfett. Suet.
Nudlar. Noodles.
Nötter. Nuts.

O

Ockra. Okra.
Oliver. Olives.
Olivolja. Olive oil.
Olja. Oil.
Ost. Cheese.
Gräddost. Cream cheese.
Rifven ost. Grated cheese.
Ostkaka. Cheese cake.
Ostron. Oysters.
Oxhare. Loin.
Oxkött. Beef.
Kryddat oxkött. Spiced beef.
Salt oxkött. Corned beef.
Torkad oxkött. Dried beef.
Oxstek. Roast beef.
Oxsvans. Oxtail.
Oxtunga. Ox-tongue.

P

Palsternacka. Parsnips.
Pastej. Pie. Tart (*bakelse*).
Peppar. Pepper.
Hvitpeppar. White pepper.
Starkpeppar. Black pepper.
Rödpeppar. Red pepper.
Cayenne peppar. Cayenne pepper.
Pepparkorn. Peppercorns.
Färsk peppar. Fresh peppers.
Spansk peppar. Chilies.
Pepparkaka. Gingerbread.
Pepparmynta. Peppermint.
Pepparrot. Horseradish.
Perlhöna. Guinea-fowl.
Persikor. Peaches.
Persilja. Parsley.
Pigghvar. Turbot.
Pistacier. Pistachio-nuts.
Plommon. Plums.
Plumpudding. Plum pudding.
Potatis. Potatoes.
Pressylta. Head-cheese. Brawn.
Pumpa. Pumpkin.
Purjolök. Leeks.
Päron. Pears.

R

Rabarber. Rhubarb.
Rapphöns. Partridge.
Refben. Rib.
Refbensspjäll. Spare-ribs.
Renett. Rennet.

Ripa. Grouse.

Ris. Rice.

Rismjöl. Rice-flour.

Rofva. Turnips.

Rom. Roe (*fisk rom*).

Rostbiff. Roast beef.

Russin. Raisins.

Rädisor. Radishes.

Rådjurskött. Venison.

Råg. Rye.

Rågmjöl. Rye-flour.

Räkor. Prawns. Shrimps.

Ränta. Tripe.

S

Sadel. Saddle.

Saft. Juice.

Sago. Sago.

Salad. Salad.

Salsofi. Oyster-plant.

Salt. Salt.

Saltlake. Saltvatten. Brine.

Salvia. Sage.

Sardiner. Sardines.

Sassafrasbark. Sassafras.

Sassaparill. Sarsaparilla.

Savojkål. Savoy cabbage.

Schalottenlök. Shallot.

Selleri. Celery.

Semolinagryn. Farina (wheat).

Senap. Mustard.

Sill. Herring.

Inlagd sill. Pickled herring.

Rökt sill. Kippered herring. Smoked herring. "Bloater" (*Engelsk*).

Sirap. Molasses. Sirup.

Sjötunga. Sole.

Skaldjur. Shellfish.

Skeppsskorpor. Hard tack.

Skifva. Slice. Rasher (*af rökt fläsk*).

Skinka. Rökt skinka. Ham.

Skinn. Skin.

Skorpor. Biscuits.

Sköldpadda. Tortoise (*Land* eller *Färsk-Vattens-*). Turtle (*Hafs-*).

Smör. Butter.

Matsmör. Cooking butter.

Salt smör. Salt butter.

Smörbakelse. Pastry.

Sniglar. Snails.

Socker. Sugar.

Bitsocker. Lump sugar.

Brunt farinsocker. Brown sugar.

Pudersocker. Powdered sugar.

Strösocker. Granulated sugar.

Sockersirap. Molasses.

Soda. Soda.

Sodavatten. Carbonated waters. Soda-water.

Soppa. Soup.

Sparris. Asparagus.

Grön sparris. Green asparagus.

Hvit sparris. White asparagus.

Sparris toppar. Asparagus tips.

Sparriskål. Broccoli.

Spenat. Spinach.

Staksill. Shad.

Stek. Roast. Steak (*köttskifva*).

Stockfisk. Dried cod.

Stör. Sturgeon.

Succat. Candied citron.

Surdeg. Leaven.

Surkål. Sauerkraut.

Svansstek. Rump.

Svin. Pig.

Svinfett. Lard.

Sviskon. Prunes.

Sylt. Jam.

Sylta. Head-cheese. Brawn.

Syra. Sorrel.

Sås. Sauce. Gravy.

Söt potatis. Sweet-potato.

Sötsaker. Candy.

T

Tapioca. Tapioca.

Te. Tea.

Timjan. Thyme.

Tomat. Tomato.

Tonfisk. Tunny-fish.

Torsk. Codfish.

Tranbär. Cranberries.

Tryffel. Truffles.

Tunga. Tongue.

Tårta. Pie. Tart (*bakelse*).

U

Unghöns. Chicken.

Unghöns för stekning. Roasting chicken.

V

Vaktel. Quail.

Valnötter. Walnuts.

Vanilj. Vanilla.

Vatten. Water.

Vattenkrasse. Watercress.

Vattenmelon. Watermelon.

Vermiceller. Vermicelli.

Vildand. Wild duck.

Vildt. Game.

Vildäpplen. Crab-apples.

Vinbär. Currants (fresh).

Vindrufvor. Grapes.

Vinge. Wing.

Våfflor. Waffles.

Å

Ål. Eel.

Ä

Ägg. Eggs.

Ägghvitor. Egg whites.

Äggulor. Yolks.

Äggplanta. Eggplant.

Äpplen. Apples.

Dessertäpplen. Eating apples.

Matäpplen. Cooking apples.

Torkade äpplen. Dried apples.

Äppelvin. Cider.

Ärter. Peas.

Gröna ärter. Green peas.

Krossade ärter. Split peas.

Ättika. Vinegar.

Ciderättika. Cider vinegar.

Maltättika. Malt vinegar.

Vinättika. Wine vinegar.

Ö

Örter. Herbs.

CULINARY AND BILL-OF-FARE TERMS

See also the DICTIONNAIRE FRANÇAIS-ANGLAIS, pages 577-579

A

Aiguillette. A small strip or slice (of cooked fish, meat, etc).

À la. (1) An elliptical form of *à la mode de*—"in the fashion (or style) of—." (2) *with*—as *à la crème*, "with cream". (3) *in*—as *à la moutarde*, in mustard sauce.

Allemande. A smooth, yellow sauce, consisting of *Velouté* with butter, egg yolks, catchup, etc.

Allumettes ("Matches"). A term sometimes applied to things cut in strips—as *Pommes allumettes*, "straw potatoes."

Amiral. A red sauce, usually flavored with lobster butter.

Aspic. See page 15.

Attereaux. Pieces of meat cooked together on a skewer.

Au. With. In. Of.

B

Baba. A yeast-raised cake. It is most famous flavored with rum sauce *(au rhum)*.

Bagration. Generally, a soup of fish and vegetables. Named after Pierre Bagration, a Russian general.

Ballotine. Pieces of meat or poultry, boned and shaped round. Also applied to small game birds stuffed with forcemeat (of ham, poultry, etc.).

Bardé. "Larded," in the sense of covering with slices of bacon or fat pork. It is also sometimes used with the same significance as *Piqué* (this list).

Barigoule (consommé). A game-flavored consommé, garnished with sliced mushrooms and olives, etc.

Bavarois (cream). Whipped cream strengthened with gelatin.

Béarnaise. A sauce prepared with egg yolks and butter, chopped parsley, tarragon, etc.

Béchamel. A fine white cream sauce. Invented by the Marquis de Béchamel, maître d'hotel to Louis XIV.

Beignet. Fritter.

Beurre fondu. Melted butter.

Bigarade (sauce). A sauce with bitter-orange (Bigarade orange) flavor.

Biscuit glacé. Rich ice cream containing powdered macaroons—or, without such addition, frozen in paper cases in oblong individual "Biscuit" shapes.

Bisque. See subhead in the article on SOUPS. The word is also sometimes used in the same sense as *Biscuit glacé* (see preceding).

Blanc-mange. See page 43.

Blanchi. Blanched, Parboiled. See BLANCHING and the subhead of *Parboiling* in the article on COOKERY.

Blanquette. See page 43.

Bleu (au). Plain boiled—used only in speaking of fresh-water fish. *Bleu*, or "blue," because boiling vinegar should be poured over the fish to give a blue color to the skin.

Bombe ("Bomb"). A filled ice or ice cream "pudding" in ball shape.

Bon Goût ("Good taste"). A term frequently used in naming highly flavored dishes.

Bonne Femme ("Good wife") In plain home style—as of a soup or stew of meat, vegetables, etc.

Bordelaise (sauce). *Espagnole* with the addition of red wine, shallots, and marrow.

Bordure (en). With a border—of rice, mashed potato, etc.

Bouchée ("Mouthful"). A small patty. Also applied to some small fancy cakes.

Boudin. A delicate entrée prepared with fish or chicken forcemeat.

Bouillabaisse. A famous French (Provençal) fish stew—made of several kinds of fish, cut into small pieces and stewed with olive oil and a variety of herbs and spices.

Bouilli. (1) Boiled. (2) Boiled beef—especially that which has been used to make bouillon or soup.

Bouillon. See subhead in the article on SOUPS.

Bourgeoise ("Citizen" cooking). In simple family style.

Bourgogne, Bourguignonne. Burgundy, Burgundy style. *Burgundy Sauce* is *Espagnole* with the addition of mushrooms, small onions, etc., and Burgundy wine.

Braisé. See *Braising* in the article on COOKERY.

Brioche. See page 52.

Broche (à la). Cooked on a skewer.

Brochettes. Pieces of meat cooked on a skewer.

Brouillés. Scrambled.

Buisson. A "bush" or "pyramid"—as a *buisson* of crayfish in the centre of a dish.

C

Café. See page 144 in the article on COFFEE.

Caisse (en). Served in a case (of paper, china, etc.).

Canapé ("Couch"). Fried or toasted bread, spread with or supporting any one of a great variety of articles.

Cannelons. Small rolls of pastry, rice, etc., stuffed with meat or sweets.

Capilotade. Formerly a stew or hash of cold meat, now generally a stew of cooked chicken.

Carafon. A small carafe or decanter, containing ordinarily about one-half pint.

Caramel. See page 71.

Carbonnade. An entrée consisting usually of braised loin of mutton, pork, etc. The term originally meant "half-burned" or "grilled."

Caréme ("Lent", "Fasting"). Used in the same way as Maigre (see page 295). It is also the name of a famous French chef and culinary author.

Casserole (en). Service in a special squat-shaped covered earthenware or metal saucepan, or other similar vessel.

Cassolette. A small casserole.

Chantilly Cream. Sweetened, flavored, whipped cream.

Charlotte. A pudding consisting of a mold, lining, or layers of bread or cake, filled with fruit or cream—as *Apple Charlotte, Charlotte Russe,* etc.

Chartreuse. A mold of different colored vegetables enveloping some kind of meat—as poultry, game, etc. Also the name of a famous liqueur.

Chasseur ("Hunter style"). With, or of, game or mushrooms.

Châteaubriand. A very thick tenderloin steak. Named after Francois Réné, Vicomte de Châteaubriand, a noted statesman, writer, and epicure.

Chaud. Hot.

Chaudfroid ("Hot-Cold"). A term applied principally to game-birds or poultry, cut or pressed after cooking into various shapes or forms and covered with *chaudfroid,* or jelly sauce, for eating cold.

Chemise (en). With the skin on—generally of potatoes.

Chiffonade. With, or of, shredded vegetables.

Civet. A highly seasoned stew of hare or venison.

Cloche (sous). "Under cover."

Cocotte. A small earthen pot.

Colbert. A clear soup with poached eggs. Also a rich brown sauce. Named after Jean Baptiste Colbert, minister of finance during the reign of Louis XIV.

Compôte. A "stew" of fruits or small birds, the former generally retaining their natural shapes.

Condé (à la). A term applied to dishes of stewed fruit served with rice. Named after the last Prince de Condé.

Consommé. See subhead in the article on Soups.

Coque (à la). Boiled—of eggs.

Coquelicot (à la). Poppy-shaped or resembling a poppy.

Coquilles (en). In shells or shell shapes.

Coupe. Cup.

Coupe St. Jacques. A fruit macédoine, topped with ice cream, served in punch glasses. The most famous dessert of its kind.

Courtbouillon. A highly seasoned fine fish broth.

Crapaudine ("Frog style"). Flattened and trussed like a frog with breast down. Generally applied to small birds broiled.

Crécy. Generally signifies garnishing, or other use, of carrots. Named after the French city made immortal by the Battle of Crécy. The district is famous for its carrots (and other vegetables).

Crème. Cream. Cream Sauce. Custard. Cream Soup—see subhead in the article on Soups.

Créole. *Sauce*—Tomato Sauce with chopped garlic, mushrooms, peppers, onions, etc. *Soup*—Okra Soup with onions, tomatoes, and peppers.

Crêpe. Pancake.

Crépinette. A flat sausage wrapped in pig's caul.

Croissants. Crescent-shaped rolls. Also used as a confectionery term.

Cromeskies. Croquette mixture cork-shaped and dipped in batter before frying.

Croquette. A mince of any kind of meat, shaped into cones, cutlets, etc.

Croustade. See page 166.

Croûte-au-pot ("Crust in the pot"). A vegetable soup containing bread crusts.

Croutons (aux). With dice or similarly shaped pieces of thin fried or toasted bread.

Cul. Bottom. Used in the same way as *Fond* (which see in this list).

D

Dariole. A kind of small tart, filled with custard or cream, etc.

Daube (en). Stewed or braised (see subhead of *Braising* in the article on Cookery).

Déjeuner. Breakfast.

Déjeuner à la fourchette ("Breakfast with a fork"). Luncheon.

Demi-deuil ("Half-mourning"). A black and white effect—generally white poultry meat, or white sauce, with truffles.

Demi-glace ("Half-glaze"). Rich thickened gravy.

Demi-tasse ("Half-cup"). A small cup of black coffee. See also page 144 in the article on Coffee.

Diable ("Devil"). A term often applied to dishes "deviled," i. e., highly peppered and spiced.

Diner. Dinner.

Diplomate (sauce). Béchamel or Cream Sauce, with the addition of crayfish, courtbouillon, etc.

Duchesse. *Sauce*—Tomato and Hollandaise sauces with the addition of diced ham, white wine, etc. *Garnish*—strips of tongue and cockscombs in rich white sauce.

Dugléré. Generally signifies the use of tomatoes. After a famous Paris restaurateur who popularized tomatoes in France.

D'Uxelles. A brown sauce with finely chopped herbs and mushrooms. Also a mixture of mushrooms, parsley, etc., for stuffing. Named after a French nobleman.

E

Écarlate ("Scarlet"). A red sauce or one containing lobster roe, red tongue, etc.

Émincé. Sliced small. Sometimes used to signify "hashed."

Entrecôte. A rib or sirloin steak. Its name, "between rib(s)," is derived from its original application to such a cut.

Entrée. (1) A term which has come to include a great variety of "made" dishes. (2) The course of such dishes.

Entremet. As employed in America, the term usually signifies the sweet course. French cookery recognizes two distinct classes—*Entremets de Douceur,* sweet dishes, and *Entremets de Légumes,* a course of vegetables (a popular service in France).

Epigramme. An entrée containing two pieces of meat, generally cooked together but prepared in different ways—as, one breaded and one plain.

Espagnole ("Spanish"). See page 190.

Estoufade. A beef stew with claret and spices.

Etuvée. Étouffé. Stewed or "smothered" (a kind of braising). The term is also used to signify "pot-roast."

F

Farçi. Stuffed.

Fausse-tortue. Mock turtle.

Fermière (“Farmer's wife”). In plain, country fashion.

Filet. See FILLET, page 198.

Financière (sauce). *Espagnole* with the addition of madeira, mushrooms, cut truffles, etc.

Fines herbes (“Sweet herbs”). A term specifically applied to a combination of chervil, chives, and parsley, minced fine for adding to soups, omelettes, sauces, etc.

Fond. Bottom, as *Fonds d'artichauts,* “Artichoke bottoms.”

Fondant. See page 208.

Fondu. Melted.

Frangipane. A flavored custard cream, filled into éclairs, paper cases, etc. Named after a famous Italian pastrycook.

Frappé. Partly frozen.

Friandise. A small dainty dish.

Fricadelles. Cakes of chopped cooked meat, mixed with bread, spices, and eggs.

Fricandeau. A piece of meat, generally veal, larded and braised.

Fricassée. A stew with thick (usually white) sauce—generally of chicken, frog's legs, or similar articles, or cold butcher's meat.

Frit. Fried.

Fumé. Smoked.

Fumet. Extract (of game, poultry, fish, etc.)

G

Galantine. See page 221.

Gâteaux assortis. Assorted cakes.

Génoise. Sauce—*Espagnole* with claret and anchovy flavoring.

Glacé. (1) Frozen. (2) Glazed or browned with meat extract. (3) “Frosted,” as of cakes. (4) Candied, as of fruits, chestnuts, etc.

Godard. A very rich garnish containing truffles, sweetbreads, mushrooms, etc., and Madeira Sauce. Named after Benjamin Godard, a French composer. Also, though less often, a sauce—*Espagnole* with carrots, onions, champagne, mushrooms, etc.

Godiveau. A forcemeat prepared with veal and beef suet.

Goulash. See page 231.

Gras (au). Cooked in rich broth.

Gratin (au). Applied to dishes covered with bread crumbs or grated cheese, etc., and browned in the oven.

Grenadin. (1) A small fricandeau. (2) Pomegranate syrup.

Grillé. Grilled.

Gumbo. See pages 246 and 351.

H

Haché. Minced, chopped.

Hachis. Hash.

Haricot (de mouton). A mutton stew with vegetables.

Haricots flageolets. See page 29.

Hollandaise. One of the most important sauces. Its composition includes butter, egg yolks, vinegar, salt, and pepper. It is yellow, and is especially suitable for serving with boiled fish, asparagus, cauliflower, etc.

Horly. See *Orly,* this list.

Hors d'œuvre. Appetizers or small “side” dishes served at the beginning of a meal to stimulate the appetite.

I

Indienne (“Indian style”). Generally signifies the use or accompaniment of curry or similar East-Indian seasoning.

J

Jardinière (“Gardener's style”). With a variety of vegetables.

Julienne. See page 271.

L

Lucullus. Applied to various rich sauces, etc. After the luxurious Roman consul of that name.

Lyonnaise. Containing onions.

M

Macédoine. See page 293.

Maigre. See page 295.

Maître d'hotel (“Hotel-steward style”). Preparations so designated generally include flavoring with chopped parsley. *Maître d'hotel Sauce* consists of melted butter, chopped parsley, and lemon juice. It is popular for service with broiled meats and broiled or boiled fish.

Marengo (à la). A term used chiefly in connection with *Chicken Sauté* and signifying its preparation and service with mushrooms, tomatoes, olives, oil, and wine—those having been the only supplies that Napoleon's chef could obtain for the emperor's supper after the battle of Marengo.

Mariné. Pickled. See also MARINADE, page 304.

Masqué. Covered—as with sauce, forcemeat, or jelly.

Matelote (“Sailor's style”). With, or of, a variety of fish.

Mayonnaise. See page 311.

Mazarin. Applied to small almond cakes and pastries. Named after Cardinal Mazarin, prime minister under Louis XIV.

Medaillon. (1) A small round fillet. (2) Similar service of many other articles, as foie gras.

Mendiants (“Beggars”). A dessert of dried figs, raisins, almonds, and filberts.

Meringue. With or of egg-white froth and sugar, slightly browned.

Mignon. “Dainty,” “Delicate.” See also reference in FILLET, page 198.

Mille feuilles (“a thousand leaves”). A cake consisting of layers of puff paste, with jam, etc., between, and variously decorated.

Minestra. A famous Italian thick vegetable soup.

Mirepoix. See *Braising* in the article on COOKERY.

Miroton. Sliced cooked meat warmed over with onions, etc.

Mock Turtle. See page 329.

Mode (à la). Literally, “in the fashion.” *Beef à la Mode* has come to mean a dish closely allied to Braised Beef or Pot-roast.

Mongol (“Mongolian style”). A purée containing peas and tomatoes, garnished with julienne.

Montpellier Butter. A green “butter” made of green herbs, scalded, drained, and pounded, and a variety of additional articles—garlic, capers, yolks, anchovies, etc.—worked into a paste. It is served cold as sauce for fish, lobster, etc.

Mornay. A cream sauce with cheese.

Mousse (''Froth,'' ''Foam''). Applied to very light dishes, generally prepared with whipped cream or whipped egg whites—as *Mousse de Volaille,* chicken mousse; *Mousse frappé,* a frozen whipped-cream dessert.

Mousseline (sauce). Hollandaise sauce with whipped cream. The term *Mousseline de* is also used in the same way as *Mousse de* (see preceding).

Mulligatawny. See page 332.

N

Napolitaine. (1) A name given to various changes or modifications of *Espagnole.* (2) As applied to ices and ice creams, it signifies layers of different flavors and colors.

Naturel (au). In plain or simple style.

Navarin. A brown mutton or lamb stew with vegetables.

Nesselrode. Containing chestnuts. Named after a Russian statesman and epicure.

Newburg. A term generally applied to lobster cooked with sherry, cream, and egg yolks, and served in a chafing dish.

Nivernaise. Garnishing of carrots.

Noisette. A small piece of lean meat—generally a chop minus the bone.

Nouveau. Nouvelle. ''New''—of peas, potatoes, etc.

O

Olla Podrida. See page 355.

Orly (à la). Strips (of fish or meat) dipped in batter and fried.

P

Pailles (''Straws''). Used to designate thin strips, as *Pailles au Fromage,* ''cheese straws.''

Panaché (''Variegated''). Of mixed colors, as several vegetables, or fruits and cream, etc.

Pané. Bread-crumbed.

Papillotes (en). In paper casings, with paper frills, etc.

Parfait (''Perfect''). A light ice cream, as *Café Parfait.*

Parmentier (à la). With, or of, potatoes. Named after Baron Augustin Parmentier, who introduced potatoes into France in 1785 and devised numerous methods of preparing them.

Parmesan (au). With grated Parmesan cheese.

Pâté. Pie. Patty. See also page 379.

Paupiette. A small meat roll.

Paysanne (''Peasant style''). In plain, country fashion.

Pepper-pot. See page 391.

Périgord. With truffles or truffle sauce. Périgord was formerly the name of a section of France famous for its truffles (see page 535).

Périgueux (à la). With truffles or truffle sauce. Périgueux is the chief city of the former province of Périgord (see the preceding item).

Persillade. Containing parsley.

Petit. Petits. ''Small,'' also, therefore, ''New''—as of peas.

Petite Marmite (''Little Pot''). See page 393.

Petits-fours. Small cakes.

Piquante. ''Sharp''—applied to sauces, etc., containing spices, lemon juice or vinegar, capers, etc.

Piqué. ''Larded''—small, narrow strips of fat pork (''larding pork'') inserted into other meats.

Poché. Poached.

Poivrade. Pepper sauce.

Pot-au-feu (''Pot on the fire''). See reference in PETITE MARMITE, page 393.

Poulette (''Hen chicken,'' or Pullet). A white sauce, generally made from chicken broth.

Praliné. Mixed with or containing burnt almonds.

Pré salé (''Salt meadow''). See page 343 in the article on MUTTON.

Printanier (''Spring style''). With spring vegetables (generally cut in small shapes). See PRINTANIER SOUP, page 417.

Provençale (Provence style). Sauces, etc., so styled generally contain garlic or onions and olive oil —in addition to mushrooms, herbs, etc.

Purée. See the article on SOUPS. Also applied to mashed vegetables, as *Purée de Pommes de Terre* (mashed potatoes).

Q

Quenelle. A forcemeat dumpling of poultry or other meat formed into oval or round shape.

R

Ragoût. Stew.

Ramequin. A cheese cake or tartlet.

Ravigote (sauce). *Velouté* with a purée of tarragon and parsley, shallots, wine vinegar, etc.

Ravioli (Italian). A mixture of calf's brains, spinach, and cheese (or any one of numerous other combinations), folded inside small pieces of noodle paste, cooked and served like spaghetti with various sauces and grated cheese.

Relevé (''Remove''). A title for the course of large joints of meat, the larger poultry birds, etc. The term is a survival of the ancient custom of setting the table with the filled plates of soup before the guests entered the dining room. After they had finished the soup, the latter was ''removed'' and replaced generally by the joint—at that period either a large fish, poultry, or butcher's meat.

Rémoulade. A cold sharp sauce of egg yolks, olive oil, vinegar, gherkins, parsley, mustard, etc.

Risi Pisi. An Italian soup containing rice and green peas.

Risotto (Italian). A dish of rice and cheese. Also a stew containing rice, olive oil, chicken broth, etc.

Rissoles. Croquettes enclosed in pastry.

Robert. A brown mustard sauce, named after a famous French restaurateur.

Rôt, or **Rôti.** Roast. Roasted.

Roulade. Rolled meat.

S

Sabayon. A sweet sauce containing eggs and flavored with wine, as madeira. Also a kind of egg punch and a dessert containing similar ingredients.

Salé. Salted.

Salmagundi. See page 447.

Salmi. See page 447.

Salpicon. A rich hash of goose liver, game, truffles, mushrooms, etc.

Sauté. See subhead in the article on COOKERY.

Solferino. A consommé with tomatoes and other vegetables.

Sorbet. SHERBET (see page 472).

Soubise (à la). With onion purée or sauce.

Soufflé ("Puffed"). A very light dish as—*Soufflé Potatoes. Pudding soufflé, Omelette soufflé.*

Souper. Supper.

Suprême. (1) A rich white sauce, generally of chicken. (2) A term freely applied to various delicately prepared dishes, as *Suprême de Volaille,* breast of chicken; *Suprême de Sole,* etc.

T

Tartare (à la). Hot, spiced. *Tartare Sauce* is mayonnaise with chopped parsley, capers, shallots, etc.

Tasse (en). In a cup.

Timbale. A paste crust, or cup made of forcemeat, etc. (filled with various ingredients).

Toulouse. A rich white stew consisting of *Allemande Sauce* with white wine, truffles, mushrooms, etc. Named after the Comte de Toulouse.

Tournedos. Small fillets of beef.

Tutti Frutti (Italian, "All fruits"). Ices or ice cream mixed with various candied fruits.

V

Velouté ("Velvety"). See page 548.

Vert-pré ("Green meadow"). A green garnishing.

Vin blanc (au). In, or with white wine.

Vinaigrette. With vinegar sauce.

Vol-au-vent ("Flying at the mercy of the wind"). A light puff-paste patty.

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